Investing in Labor-Market Information (LMI): A Summary of the State LMI Improvement Grants

Final Report

August 30, 2012

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ABSTRACT

Labor–market information (LMI) plays a crucial role in ensuring a well-functioning labor market. In 2009, the American Recovery and Reinvestment Act (Recovery Act) expanded the federal investment in states' LMI systems as part of an overall strategy to create new jobs, save existing ones, spur economic activity, and invest in long-term growth. As part of the Recovery Act's funding for jobs in energy-efficiency and renewable-energy industries (also known as "green jobs"), the U.S. Department of Labor (DOL) awarded $50 million in state LMI improvement grants (referred to as "LMI grants" in this report), to 30 grantees, including 24 individual state workforce agencies (SWAs) and six consortia of SWAs. In September 2010, DOL's Employment and Training Administration contracted with Mathematica Policy Research to examine the implementation of the LMI improvement grants, broadly document the activities of all grantees, and provide a detailed description of the activities and partnerships of a subset of grantees. In this report, we summarize information about grantees' goals, definitions of green jobs, partners and stakeholders, activities, products, and dissemination strategies. The report is based on a review of grantees' statements of work (SOWs), quarterly progress reports, and information gathered from in-depth site visits with nine grantees. Grantees experienced challenges due to the short grant length, and administration issues, and as well as the evolving definition of green jobs. At the same time, they leveraged the LMI grants to enhance organizational capacity, develop a better understanding of the green economy, and disseminate findings to users, ultimately moving LMI forward at state and national levels.

EXECUTIVE SUMMARY

Labor-market information (LMI) plays a crucial role in ensuring a well-functioning labor market. LMI can affect the education and training decisions of workers; the investment decisions of employers; and the economic development strategies of local, state, and federal government agencies. In 2009, the American Recovery and Reinvestment Act (Recovery Act) expanded the federal investment in states' LMI systems as part of an overall strategy to create new jobs, save existing ones, spur economic activity, and invest in long-term growth. As part of the Recovery Act's funding for jobs in energy-efficiency and renewable-energy industries (also known as "green jobs"), the U.S. Department of Labor (DOL) awarded $50 million in state LMI improvement grants (referred to as "LMI grants" in this report), to 30 grantees, including 24 individual state workforce agencies (SWAs) and six consortia of SWAs.

In September 2010, DOL's Employment and Training Administration (ETA) contracted with Mathematica Policy Research to examine the implementation of the LMI improvement grants, broadly document the activities of all grantees, and provide a detailed description of the activities and partnerships of a subset of grantees. We base our this report on our review of grantees' statements of work (SOWs), their quarterly progress reports, and information gathered from in-depth site visits with nine grantees. In this report, we provide a summary of the diverse activities pursued by the LMI grantees and provides. We summarize information on grantees' their goals, definitions of green jobs, partners and stakeholders, activities, products, and dissemination strategies.

- **Goals.** Grantees pursued a variety of goals, reflecting the economic conditions in their areas, the priorities of SWAs or consortia of SWAs, and earlier green-jobs efforts in the states. We classified grantee- identified SOW goals into six categories: (1) identify green jobs, skills, and competencies; (2) determine the current labor supply and demand for green jobs; (3) project future green jobs; (4) connect workers to green jobs; (5) enhance LMI infrastructure; and (6) disseminate information about green jobs. The majority of grantees identified at least four of these goals to guide grant activities and products.
- **Green-Jobs definitions.** To collect LMI on green jobs, grantees had to identify which jobs were green. Their understanding of what constituted a green job was still evolving during the grant period, and Grantees employed various definitions of green jobs in their activities, products, and dissemination strategies. The Bureau of Labor Statistics (BLS) released a preliminary definition of green jobs in March 2010, which was adopted and modified by six grantees. Two grantees opted to use BLS's revised green jobs definition released in September 2010 (referred to as the "standard BLS definition" in this report). Twenty-one grantees developed or used existing state-specific definitions, determined through prior research, or, in some cases, state statute. One grantee decided not to define green, but instead to rather allowing the users of its product to select their own definitions. Although most grantees developed or adopted a primary green-jobs definition, many had to use an alternative definition for some of their activities or products. Off-the-shelf products typically embedded included a green-jobs definition that could not be adjusted for specific states.

- **Partnerships.** To receive funds, grantees were required to implement their projects through a "robust strategic partnership" that included state workforce investment boards (WIBs), state LMI and research entities, and employers and industry leaders. Partnerships varied in several important ways, including the goals of the partnership, the structure of the arrangement, and the delegation of responsibilities. Some partnership arrangements included contracts or memoranda of understanding, whereas and others were more informal. Although all grantees reported having at least five partners, some of the grantees reported having many more.
- **Activities.** Grantees planned and implemented a breadth of activities. Many were focused around gathering information on green jobs. Grantees conducted literature reviews; analyzed extant data to identify worker and firm trends; interviewed experts, stakeholders, and employers; and administered surveys to better understand the nature of green jobs. This data gathering represented a significant portion of grantee activities and often involved the grantees' partners.
- **Products.** All grantees produced deliverables or products with LMI grant funds. These products included research reports, employment projections, career tools for green jobs, and infrastructure improvements. Many developed a variety of products within these categories that enhanced both the understanding of and access to information on green jobs.
- **Dissemination.** As required by the grant, all 30 grantees developed a dissemination plan. These plans involved a variety of media, forums, and tools to disseminate information and grant products, including electronic tools, social media, and conference presentations. In addition to attending and presenting at conferences, some grantees hosted conferences to engage stakeholders and share information collected through the grant.

In summary, LMI grantees pursued ambitious plans involving a wide range of LMI activities to support the development and dissemination of timely, relevant, accessible information about the green economy. Over the course of the grant, grantees experienced challenges such as including developing relevant definitions of green for their states or consortia. They also faced administrative challenges, including working within tight time constraints to complete activities and products, hiring staff efficiently, and managing procurements well. Despite these challenges, the LMI grants enhanced grantees' organizational capacity, provided them and their stakeholders with a better understanding of the green economy, and ultimately moved LMI forward at state and national levels.

I. INTRODUCTION

Labor-market information (LMI) plays a crucial role in ensuring a well-functioning labor market. LMI can affect the education and training decisions of workers; the investment decisions of employers; and the economic development strategies of local, state, and federal government agencies. LMI also facilitates matches between employers seeking to hire and individuals looking for work. The U.S. Department of Labor (DOL), specifically the Bureau of Labor Statistics (BLS) and the Employment and Training Administration (ETA), collect a great deal of public LMI nationwide.[1] State employment agencies also collect this type of information. LMI efforts at the state level include data collection in cooperation with BLS, analysis and research on state and local labor-market issues, and the provision of state and local information to customers through publications and other dissemination efforts.

In 2009, the American Recovery and Reinvestment Act (Recovery Act) expanded the investment in states' LMI systems as part of an overall strategy to create new jobs, save existing ones, spur economic activity, and invest in long-term growth. Among other investments, the Recovery Act provided $750 million for a program of competitive grants to train workers in high-growth industries, of which $500 million went to support jobs in energy-efficiency and renewable-energy industries (also known as "green jobs"). As part of the Recovery Act funding for green jobs, DOL awarded $50 million in state LMI improvement grants (referred to in this report as the "LMI grants") to 30 grantees, including 24 individual state workforce agencies (SWAs) and six consortia of SWAs (see Table I.1). These 18-month grants began in December 2009. Some concluded as late as December 2011 due to extensions.

Grantees used the LMI funds, ranging from approximately $750,000 to $4 million, to collect, analyze, and disseminate LMI and enhance the labor-exchange infrastructure for jobs and careers within the energy-efficiency and renewable-energy industries. Each SWA or consortium was required to form strategic partnerships to help facilitate efforts to improve LMI in the state. Grantees' activities sought to benefit workers, job seekers, businesses, educational institutions, and the overall economy in their states or regions through the following efforts:

- Measuring, describing, and projecting employment in green industries and occupations
- Identifying career ladders and pathways to green jobs
- Expanding and providing information about related training and employment opportunities
- Developing electronic information tools

[1] Available at [http://www.workforceinfocouncil.org/aboutsystem.asp#Content]. Accessed December 7, 2010.

The LMI grants built on an increasing national interest in green jobs. For example, the first meeting of the White House Task Force on the Middle Class focused on the potential of green jobs as a pathway to middle-class status.[2] President Obama placed significant emphasis on clean-energy jobs in the 2010 State of the Union address. While Recovery Act grants were being allocated to develop worker trainings for green jobs and to disseminate information about the green economy, BLS received funding to develop an official definition of green jobs and industries and to begin implementing several large-scale data collection efforts in this area. As a precursor to such efforts, BLS published its final definition of green jobs in September 2010,[3] after the LMI grants had been awarded.

In September 2010, ETA contracted with Mathematica Policy Research to examine the implementation of the LMI improvement grants, broadly document the activities of all grantees, and provide a detailed description of the activities and partnerships of a subset of grantees. In this report, we provide an overview of the diverse activities pursued by the LMI grantees. We summarize information on grantees' goals, definitions of green jobs, partners and stakeholders, activities, products, and dissemination strategies. We base our report on our review of grantees' statements of work (SOWs) and their quarterly progress reports. Mathematica also conducted in-depth site visits with nine grantees and information on these visits will be included in a forthcoming final report.[4]

[2] Available at [http://www.whitehouse.gov/the-press-office/remarks-president-state-union-address] and at [http://www.whitehouse.gov/assets/documents/mctf_one_staff_report_final.pdf]. Accessed January 13, 2011.

[3] Available at [http://www.bls.gov/green/]. Accessed January 13, 2011.

[4] Mathematica conducted nine in-depth site visits between May 2011 and January 2012 to the following grantees: Driving Change Consortium, MARC Consortium, Northeast Consortium, Alaska, Iowa, New Jersey, New Mexico, Pennsylvania, and Oregon.

Table I.1. Summary of Grantee Projects

Grant Recipient	Project Name	Award Amount	DOL Region	States in Consortia
Consortia				
Indiana Department of Workforce Development (MIINOH)	Driving Change*	$4,000,000	5	Michigan, Indiana, Ohio
State of Louisiana Office of Occupational Information Services, Research and Statistics Division (Gulf Coast Green-Jobs Consortium)	Gulf Coast Green-Jobs Consortium	2,279,393	3, 4	Louisiana, Mississippi
Maryland Department of Labor, Licensing and Regulation (Mid-Atlantic Regional Collaborative [MARC] Green Consortium)	MARC*	4,000,000	2	Maryland, Virginia, DC
Montana Department of Labor and Industry (Northern Plains and Rocky Mountain Consortium)	Northern Plains and Rocky Mountain Consortium	3,877,949	4,5	Montana, Iowa, Nebraska, South Dakota, Utah, Wyoming
Nevada Department of Employment, Training and Rehabilitation (Projections Improvement Consortium)	Projections Improvement Consortium	3,753,000	1, 3, 4, 5, 6	Nevada, Colorado, Florida, Illinois, New York, North Carolina, Texas, Utah
Vermont Department of Labor (Northeast Consortium)	Northeast Consortium*	3,999,923	1	Vermont, Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island
Individual States				
Alabama Department of Industrial Relations	Alabama	1,145,210	3	
Alaska Department of Labor and Workforce Development	Alaska*	800,000	6	
Arizona Department of Economic Security	Arizona	1,211,045	6	
State of California Employment Development Department	California	1,250,000	6	
Delaware Department of Labor	Delaware	889,404	2	
Florida Agency for Workforce Innovation	Florida	1,250,000	3	
Georgia Department of Labor	Georgia	1,177,975	3	
Hawaii Department of Labor and Industrial Relations	Hawaii	1,247,393	6	
State of Idaho Department of Labor	Idaho	1,250,000	6	
Iowa Workforce Development (IWD)	Iowa*	1,172,614	5	
Kentucky Education and Workforce Development Cabinet	Kentucky	1,250,000	3	
Minnesota Department of Employment and Economic Development	Minnesota	1,155,488	5	
Missouri Department of Economic Development	Missouri	1,227,192	5	
New Jersey Department of Labor and Workforce Development	New Jersey*	1,249,995	1	
New Mexico Department of Workforce Solutions	New Mexico*	1,250,000	4	
New York State Department of Labor	New York	1,112,207	1	
Employment Security Commission of North Carolina	North Carolina	946,034	3	
Ohio Department of Job and Family Services	Ohio	1,015,700	5	
State of Oregon Employment Department	Oregon*	1,250,000	6	
Commonwealth of Pennsylvania, Department of Labor and Industry	Pennsylvania*	1,250,000	2	
Puerto Rico Department of Labor and Human Resources	Puerto Rico	1,248,388	1	
South Carolina Department of Commerce	South Carolina	763,175	3	
Tennessee Department of Labor and Workforce Development	Tennessee	765,340	3	
Washington State Employment Security Department	Washington	1,060,910	6	

*In-depth site visit completed.

II. GRANTEES' PROJECT GOALS

Most of the 30 grantees pursued multiple goals simultaneously. Grantees' goals reflected the economic conditions in their areas, the priorities of SWAs or consortia of SWAs, and earlier green-jobs efforts in the states. Some of the grantees were already conducting research on green jobs when they received the LMI grants and were looking to build on this work, while others were new to the field.

In the initial SOWs, grantees identified their goals for the grants. We classified these goals into six categories: (1) identify green jobs, skills, and competencies; (2) determine the current labor supply and demand for green jobs; (3) project future green jobs; (4) connect workers to green jobs; (5) enhance LMI infrastructure; and (6) disseminate information about green jobs.

- **Identify green jobs, skills, and competencies**. Almost all grantees aimed to understand the green jobs within their state or consortium of states. As we discuss in Chapter III, grantees used different approaches to define green jobs and employed a variety of strategies to collect additional LMI. Some grantees surveyed and interviewed employers and experts in their local areas. Grantees also collected and analyzed data to determine and document the skills required in the identified green jobs. To do so, grantees used administrative data, surveys, focus groups, and interviews with experts.
- **Determine the current labor supply and demand for green jobs**. A common goal for grantees was to measure and describe the current labor market for green jobs. These efforts included employer surveys and systematic assessments of online job listings. Grantees also used surveys of training providers and workers to investigate the number of available workers with the skills to fill green jobs.
- **Project future green jobs**. Grantees were also interested in understanding future labor demand or labor supply. Some worked with educational institutions and research organizations to develop projection models. Others asked employers to make projections about future green jobs at their establishments. For estimates of future labor supply, one grantee surveyed workers about their willingness to train for new occupations. Another surveyed training providers for green jobs to estimate the flow of new workers entering the field.
- **Connect workers to jobs**. While all but one grantee developed tools and products that aimed to connect workers to jobs, only some grantees indicated that connecting workers to jobs, especially green jobs, was an explicit goal. (For more information on grantee efforts to connect workers to jobs, see Chapters IV and V.) The scope and audience for these tools varied across grantees, with some distributing these materials to community colleges or other training providers.
- **Enhance LMI infrastructure**. A few grantees indicated that enhancing LMI infrastructure was one of their explicit goals. Others engaged in activities and developed products that resulted infrastructure improvements; however, these grantees did not consider enhancing LMI infrastructure as an explicit goal.

- **Disseminate information about green jobs**. As required by the grant, all 30 grantees developed a dissemination plan. They employed a variety of media, forums, and tools to disseminate information and products. Most included green-job information on their LMI websites and in their job banks. Five grantees disseminated information using social media.

III. GRANTEES' DEFINITIONS OF GREEN JOBS

To collect LMI on green jobs, grantees had to identify which jobs were green. The understanding of what constituted a green job was still evolving during the grant period, and much of the discussion about this issue is summarized in the Green Jobs Study Group report.[5] Grantees employed various definitions of green jobs in their activities, products, and dissemination strategies, which was not surprising, given the lack of a standard definition when the grants were awarded. Some grantees adopted different versions of an emerging BLS green-jobs definition, while others used existing or developed new state-specific definitions.

BLS released its definition of green jobs on September 2010 (referred to as the "standard BLS definition" in this report), almost a year after award of the LMI improvement grants. BLS defines green jobs as "(1) jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources or (2) jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or using fewer natural resources."[6] Before the release of the standard BLS definition, BLS published a preliminary definition in March 2010 (referred to as "preliminary BLS definition" in this report). The preliminary BLS definition defined green jobs as those "involved in economic activities that help protect or restore the environment or conserve natural resources. These economic activities generally fall into the following categories: (1) renewable energy, (2) energy efficiency, (3) greenhouse gas reduction, (4) pollution reduction and cleanup, (5) recycling and waste reduction, (6) agricultural and natural resources conservation, and (7) education, compliance, public awareness, and training."[7]

Because the BLS definition was not available when the grantees were designing their projects, grantees initially looked to other sources for guidance or worked with local stakeholders to determine their own definition of green employment (while they were kept informed of BLS's continuing efforts to define green jobs). In their SOWs, most grantees proposed to use O*NET-SOC's "Greening of the World of Work: Implications for O*NET-SOC and New and Emerging Occupations," released in February 2009, as a guiding document for initial research into green jobs and the green economy. In this report, O*NET-SOC divided green jobs into the following categories: green increased-demand occupations, green enhanced-skills occupations, and green new and emerging occupations.[8] Other grantees, particularly those who had conducted prior research on green jobs and viewed themselves as state leaders in green-jobs measurement, proposed alternative definitions based on their own research or statutory definitions of green jobs. For example, Oregon's 76th legislature defined green jobs in House Bill 3330.[9]

[5] Available at [http://www.workforceinfocouncil.org/Documents/WICGreenJobsStudyGroupReport-2009-10-01t.pdf]. Accessed March 21, 2011.

[6] Available at [http://www.bls.gov/green/]. Accessed March 9, 2011.

[7] Available at [http://www.bls.gov/green/]. Accessed March 9, 2011.

[8] Available at [http://www.onetcenter.org/green.html]. Accessed March 9, 2011.

[9] Available at [http://www.leg.state.or.us/09reg/measpdf/hb3300.dir/hb3300.intro.pdf]. Accessed July 11, 2012.

Our nine site visits revealed that many grantees revised their working definitions of green jobs during the grant period. With this understanding, we conducted additional investigation into all grantees' definitions of green for this report. We reviewed grantees' final reports, websites, and survey materials to determine their primary definitions of green jobs. We found that although the majority of grantees listed the O*NET definition in their SOWs, none used this as their primary green-jobs definition. Ultimately, grantees did one of the following to establish their primary definition of green jobs (Table III.1):

- **Adopted the standard BLS definition.** Two grantees defined green jobs using the standard BLS definition without modification.
- **Adopted the preliminary BLS definition**. Six adopted the preliminary BLS definition. However, all grantees that used the preliminary BLS definition made modifications either to measure intensity of green or provide local examples to categorizations. Definitions of the intensity of green activities in a green job varied by grantee. For example, BLS determined that a job would count as green if at least 50 percent of a worker's time was spent in green activities. Although Kentucky measured green jobs using the preliminary BLS definition, it classified a job as green if a worker spent any time in a green activity. Modifications were also made to localize economic activity categories or examples. The Gulf Coast Green Jobs Consortium altered the preliminary definition by adding coastal restoration to the agricultural and natural resources conservation economic activity category.
- **Used a grantee-specific definition**. Of the 30 grantees, 21 used a state-specific definition of green jobs. Many of the grantees with state-specific definitions had conducted previous research about green jobs and the green economy. For example, Oregon has a statutory definition of green jobs: "a job that provides a service or produces a product that increases energy efficiency; produces renewable energy; prevents, reduces, or mitigates environmental degradation; cleans up and restores the natural environment; or provides education, consultation, policy promotion, accreditation, trading and offsets, or similar supporting services for any of the activities identified in this subsection."[10] In contrast, the Northeast Consortium identified defining green jobs as a primary grant activity and defined green using an evolving list of terms associated with jobs that had a direct impact on preserving, restoring, or enhancing environmental quality.
- **Did not define green jobs.** One grantee elected not to define green jobs. The Projections Improvement Consortium developed projections software that would have wide usage across the U.S. and, understanding that states would define green in various ways, built in local flexibility to the software. Thus, a state that uses the standard BLS definition and a state that uses its own definition would both be able to use the green components of the software.

[10] Available at [http://www.leg.state.or.us/11reg/measures/hb2800.dir/hb2840.intro.html]. Accessed March 28, 2011.

Although most grantees developed or adopted a primary green-jobs definition, many had to use an alternative definition for some of their activities or products. Off-the-shelf products typically embedded a green-jobs definition that could not be adjusted for specific states. Several grantees used information developed by O*NET that had a different definition than the ones they adopted. For example, MARC linked to occupational profiles from O*NET that use the O*NET definition instead of the preliminary BLS definition the consortium selected. In addition, grantees that collaborated with other states, agencies, or organizations had to use different definitions for certain activities or products. For example, although Georgia used the preliminary BLS definition for most of its activities, it made updates to its Career Information System website, a career exploration tool designed for students and entry-level job seekers, which uses the O*NET green-jobs definition.

The ability to define green jobs locally produced advantages and disadvantages for the grantees. The selection of a state-based definition or modified-standard definition allowed grantees to use a definition that reflected the local economic conditions or better suited the intended grant activities and products. For instance, Driving Change used Michigan's green-jobs definition, which emphasizes the automotive industry. This definition suited Driving Change's targeted audience—dislocated automotive workers. Having many green-job definitions also created challenges. Grantee estimates of the number of green jobs or the skills required for such jobs will depend on the underlying definition of green. Grantees considering a job with any green content to be green will clearly find a greater number or green jobs than a grantee using a stricter definition. Because most did not use the standard BLS definition of green jobs (preliminary or final) and funding for the state-specific efforts did not continue beyond the grant, collection of comparable data in the future is unlikely to occur in most states and consortia.

Table III.1. Primary Definitions of Green Jobs Used by State LMI Improvement Grantees

Project Name	Definition Used	Additional Notes
Consortia		
Driving Change	Grantee-specific	Used a series of terms that describe the green economy, green jobs, green-related industries, and green-related occupations according to Michigan's existing definition
Gulf Coast Green Jobs Consortium	Preliminary BLS	Altered preliminary BLS definition to include coastal restoration in the BLS "agricultural and natural resources conservation activity" category
MARC	Preliminary BLS	Included job as green if any time was spent in a green activity
Northern Plains and Rocky Mountain Consortium	Grantee-specific	Used consortium-specific definition of employment activities that could be categorized in any of 12 identified green employment activities
Projections Improvement Consortium	Did not define	Did not define green jobs; software provided states flexibility to customize "green jobs" definitions to meet local needs
Northeast Consortium	Grantee-specific	Used an evolving list of terms associated with green jobs that have a direct impact on preserving, restoring, or enhancing environmental quality
Individual States		
Alabama	Preliminary BLS	Customized the explanations and examples to meet local needs
Alaska	Preliminary BLS	Added state-specific examples of professions that should and should not be included in the BLS categories
Arizona	Standard BLS	Used standard BLS definition after using preliminary BLS definition; provided examples in "green jobs" categories
California	Grantee-specific	Established five categories of green activities or services
Delaware	Grantee-specific	Established four categories of workers' products or services
Florida	Grantee-specific	Required direct production of products or services in any of five categories
Georgia	Preliminary BLS	Customized the explanations and examples to meet local needs
Hawaii	Grantee-specific	Created five core green areas in which a business is 100 percent green or which involve part-time, recurring green responsibilities
Idaho	Grantee-specific	Required essential work in any of four core green areas
Iowa	Grantee-specific	Established six categories of economic activity that defined the green economy
Kentucky	Preliminary BLS	Used preliminary BLS definition of output green jobs; defined job as green if any time was spent in a green activity
Minnesota	Grantee-specific	Required 50 percent of workers' time to be in any of five green activities; must have direct relation to and/or be essential to green product, service, or process
Missouri	Grantee-specific	Required direct involvement in generating or supporting green-related products or services
New Jersey	Grantee-specific	Modified its working definition of green to more closely align with standard BLS definition
New Mexico	Grantee-specific	Required portion of job to focus on environmental quality, energy and resource efficiency, or sustainable practices
New York	Grantee-specific	Required primary involvement in producing green products or services
North Carolina	Grantee-specific	Required essential work in products or services in six areas
Ohio	Grantee-specific	Involved in primary and support occupations for green-related products or services
Oregon	Grantee-specific	Required essential duties that provide a service or produce a product in five categories (codified in statute)
Pennsylvania	Grantee-specific	Used employer feedback to refine a definition of green that included jobs that produced or offered products or services in six categories
Puerto Rico	Standard BLS	N.A.
South Carolina	Grantee-specific	Recognized jobs that contribute to the quality of the environment, are energy conscious, and are energy efficient
Tennessee	Grantee-specific	Identified 10 sectors that have jobs with economic activity in five green categories
Washington	Grantee-specific	Recognized jobs that promote environmental protections and clean energy

IV. PARTNERS AND STAKEHOLDERS

Although SWAs were the primary recipients of the LMI grants, the agencies did not act alone. To receive funds, grantees were required to implement their projects through a "robust strategic partnership" that included state workforce investment boards (WIBs) and other partners.[11] Partnerships varied in several important ways, including the goals of the partnership, the structure of the arrangement, and the delegation of responsibilities. Some partnership arrangements included contracts or memoranda of understanding, and partners were responsible for completing specific grantee deliverables. In other cases, the partnerships were more informal and grantees considered their partners to be stakeholders and looked to them for input on grant goals, products, and dissemination strategies.

Grantees recruited a wide range of partners, including other state agencies, universities, community colleges, and industry-related organizations (Table IV.1). While all grantees reported having at least 5 partners, some of the grantees reported many more. For example, Driving Change named 32 partners in its grant application. Partnership arrangements are described below.

- **All grantees partnered with at least one other state-level agency.** In some instances, grantees engaged state WIBs in grant efforts. Many of the partnerships involved the state's department of energy or economic development agency. Oregon, for example, worked closely with the Department of Community Colleges and Workforce Development.
- **Twenty-eight grantees established partnerships with educational institutions, including research universities and community colleges.** In general, partnerships with the two types of educational institutions served different purposes. Research universities typically provided technical skills, such as survey or projection methodology. For example, the Northeast Consortium partnered with Georgetown University to leverage Georgetown's experience analyzing real-time LMI. Community colleges, on the other hand, are typically end users of the collected LMI and tended to develop or link existing training programs to in-demand green occupations.
- **Twenty-six grantees also partnered with private and nonprofit organizations.** Some grantees formed formal partnerships with private organizations that acted as subcontractors. For example, Kentucky engaged the consulting firm ICF International to help conduct data collection and survey analysis. In other cases, grantees had informal partnerships with organized labor, business organizations, and industry groups. Idaho, for example, partnered with the Idaho AFL-CIO and the Center for Advanced Energy Studies, a public-private collaboration made up of three universities, private-industry representatives, and the Idaho National Laboratory. These informal partnerships provided grantees with user perspectives to help ensure that grant products met the needs of key stakeholders.

[11] The grant solicitation listed state LMI and research entities, state WIBs, and employers and industry leaders as examples of "robust" strategic partners.

SWAs also coordinated their efforts with other Recovery Act-funded green-jobs projects, specifically the State Energy Sector Partnership (SESP) grants. These grants provided state- and local-area funds to develop energy-sector training programs. During the site visits, we learned that the partnerships between the LMI and the SESP grants could be quite strong. One of these grantees, New Mexico, viewed the two grants as a single, larger green-jobs grant; it developed single branding for the LMI and SESP grants, a joint website, and other combined dissemination activities and resources.

Table IV.1. Partners and Stakeholders of State LMI Improvement Grantees

		Educational Institutions		
	State-Level Organizations	Research Universities	Community Colleges	Private and Nonprofit Organizations
Consortia				
Driving Change	X	X		X
Gulf Coast Green Jobs Consortium	X	X		X
MARC	X	X	X	X
Northern Plains and Rocky Mountain Consortium	X	X	X	X
Projections Improvement Consortium	X			X
Northeast Consortium	X	X	X	X
Individual States				
Alabama	X	X		X
Alaska	X	X		
Arizona	X		X	X
California	X	X	X	X
Delaware	X	X		X
Florida	X		X	X
Georgia	X	X		X
Hawaii	X	X	X	X
Idaho	X	X	X	X
Iowa	X	X	X	X
Kentucky	X	X	X	X
Minnesota	X	X	X	X
Missouri	X	X	X	
New Jersey	X	X		X
New Mexico	X	X		
New York	X	X		X
North Carolina	X	X	X	
Ohio	X	X		X
Oregon	X	X	X	X
Pennsylvania	X	X	X	X
Puerto Rico	X	X	X	X
South Carolina	X	X	X	X
Tennessee	X	X	X	X
Washington	X			X

V. GRANTEE INFORMATION-GATHERING ACTIVITIES

Grant requirements were quite flexible, enabling states and consortia to define their activities based on specific state or regional goals. As a result, grantees planned and implemented a breadth of activities (Table V.1). We discuss these activities in more detail below for the 29 grantees that focused on gathering information on green jobs.

To gather information, grantees conducted literature reviews; analyzed extant data to identify worker and firm trends; interviewed experts, stakeholders, and employers; and administered surveys to better understand the nature of green jobs. This data gathering represented a significant portion of grantee activities and often involved the grantees' partners. To leverage the information gathered, grantees established information-dissemination plans (discussed in Chapter VII of this report) to provide the public results of these activities.

A. Literature Review

Seventeen of the grantees conducted literature reviews to gather information to inform their other activities and products. Some contracted with universities and research organizations to conduct these reviews and publish the findings.

The topics of the reviews were aligned with grantees' goals and outcomes. Many conducted literature reviews to identify green occupations, green industries, and relevant information about the local economy. For example, South Carolina reviewed reports, studies, and surveys to assess the current definitions of green jobs and identify potential modifications to state laws and regulations, such as relevant tax and employment incentives that could affect the green economy in the state.

Other grantees reviewed existing competencies and training curricula for green jobs. Some used this literature to support the development of an inventory of green-job competencies, green career pathways, and relevant training programs.

B. Analysis of Extant Data

Extant data allowed grantees to understand different aspects of labor demand and labor supply in green occupations. In particular, extant data provided insights on wages, skill requirements, job turnover, and occupational ladders and lattices. Many linked information collected in green-jobs surveys or other data collection activities to existing administrative data.

Grantees used two types of extant data:

- **Population/worker data**. Fifteen used extant data to identify the characteristics of green workers, such as skills and wages. For example, California analyzed data collected from a previous survey administered to 51,000 employers, linking information on identified green employers to administrative data on the workers employed by these firms. Alaska used its occupational database to identify individuals in green occupations and track the historical movement of these workers from occupation to occupation to create green career ladders and lattices.

- **Employer data**. Eight grantees identified analysis of firm data as a grant activity. Firm data allowed them to understand labor demand as it related to green jobs. For example, Washington State evaluated existing data to ensure that firms were accurately classified as green in the labor exchange, facilitating the flagging of green jobs.

Table V.1. Grantee Information-Gathering Activities

		Extant Data Analysis			
	Literature Review	Population/ Worker Data	Employer Data	Interviews	Conduct Surveys
Consortia					
Driving Change	X	X	X	X	X
Gulf Coast Green Jobs Consortium	X	X		X	X
MARC	X	X			X
Northern Plains and Rocky Mountain Consortium	X	X	X	X	X
Projections Improvement Consortium					
Northeast Consortium	X				
Individual States					
Alabama	X			X	X
Alaska		X		X	X
Arizona	X			X	X
California	X	X	X	X	X
Delaware	X	X	X	X	X
Florida	X			X	X
Georgia					X
Hawaii	X				X
Idaho	X	X	X	X	X
Iowa				X	X
Kentucky	X				X
Minnesota				X	X
Missouri	X			X	X
New Jersey		X		X	X
New Mexico	X			X	X
New York		X		X	X
North Carolina				X	X
Ohio		X		X	X
Oregon	X	X	X	X	X
Pennsylvania				X	X
Puerto Rico			X		X
South Carolina	X	X		X	X
Tennessee		X		X	X
Washington		X	X	X	X

C. Interviews

Most grantees (23 of 30) conducted interviews or focus groups to gain more information on green occupations and industries. Interview respondents included green-jobs experts, stakeholders, and employers:

- **Expert interviews**. For example, the Northern Plains-Rocky Mountain Consortium, which included Montana, Wyoming, and South Dakota, assigned different SWAs to interview various state agencies and experts about green jobs. Wyoming interviewed staff from its Department of Environmental Quality for a green impact study, while South Dakota interviewed staff from the Department of Environment and Natural Resources on information concerning regulatory occupations.
- **Stakeholder interviews**. For example, the Gulf Coast Green Jobs Consortium interviewed training providers, state agencies, industry groups, labor organizations, and trade organizations to gather more information on the current and future status of the green economy.
- **Employer interviews**. As an example, California followed up its previous employer survey by conducting targeted interviews with identified green employers, specifically those in energy-efficient building, construction, retrofitting, and renewable electric power. These interviews provided information on workers and firms in the targeted industries. Pennsylvania also conducted seven listening sessions with green employers and educators.

D. Surveys

Most grantees conducted a survey. Employer surveys were particularly common with 26 grantees fielding a survey (Table V.2). Some of the patterns follow:

- **Most of the employer surveys represented new data-collection efforts**. For the majority of grantees, the LMI project was their first opportunity to conduct a green-jobs survey. However, a few grantees had initiated green-jobs data collection before receiving the LMI grant. For these states, the grant helped them continue or expand their data-collection efforts. For example, Idaho and Minnesota had existing job-vacancy surveys to which they added questions about green jobs. Each of the two states then followed up with a more in-depth survey of the firms that reported green-jobs vacancies.
- **Grantees used various survey modes to contact employers**. Most grantees used web and paper surveys and followed up by phone with nonrespondents. One limitation that prevented more grantees from using web surveys was the difficulty in identifying appropriate email contacts at employers. For example, the MARC Consortium initially planned to use a web-based survey but had to switch to paper and telephone because email addresses were unavailable.

- **Some grantees targeted a specific sample of employers, while others surveyed employers more broadly**. Most grantees conducting employer surveys focused on firms that were likely to have green jobs. Alaska, for example, used its administrative occupational database to select firms that reported occupation codes included on the lists of O*NET green jobs (enhanced demand, enhanced skill, and new and emerging occupations). Oregon had already conducted a survey of green industries and therefore focused on the agricultural sector and on self-employed workers, two groups frequently missed in employer surveys.
- **All employer surveys counted the number of existing green jobs and all but one sought to identify their skill requirements**. In addition, 16 collected information to assist with demand projections, 11 collected information on job quality (including wages and employment benefits offered in green jobs), and 25 assessed the skill requirements of green jobs.

In addition to surveying employers, grantees conducted surveys of training providers and workers. Surveys of training providers helped grantees understand training needs and existing capacity to train workers for green jobs. Twelve grantees conducted these surveys. Worker surveys were less common among grantees; only three of the grantees, Alabama, Delaware, and Iowa, conducted such surveys. In its survey, Alabama collected information on unemployment and underemployment, job satisfaction, and the willingness of job seekers to train for new occupations. Delaware asked workers whether they were trying to obtain new skills, including green skills. For employed workers, the survey identified those in green jobs and collected information on wages and benefits. Iowa asked respondents if their jobs required additional training or certifications, what type of training they were, and what green activities their jobs entailed. Washington State used an online survey of job seekers and other LMI customers to assess the usability of the LMI website.

Table V.2. Grantee Surveys

	Type of Survey			Purpose of Employer Survey			
	Employer Survey	Worker Survey	Training Provider Survey	Count Number of Existing Green Jobs	Project Number of Future Green Jobs	Assess the Quality of Green Jobs	Identify Skill Requirements
Consortia							
Driving Change	X			X			
Gulf Coast Green Jobs Consortium	X			X			X
MARC	X			X	X	X	X
Northern Plains and Rocky Mountain Consortium	X			X	X	X	X
Projections Improvement Consortium							
Northeast Consortium				X	X	X	X
Individual States							
Alabama	X	X	X	X			X
Alaska	X			X	X		X
Arizona	X			X		X	X
California	X			X			X
Delaware	X	X	X	X			X
Florida	X			X	X		X
Georgia	X			X	X	X	X
Hawaii	X			X		X	X
Idaho	X		X	X	X		X
Iowa	X	X	X	X			X
Kentucky	X			X	X	X	X
Minnesota	X		X	X		X	X
Missouri			X				
New Jersey			X				
New Mexico	X		X	X	X	X	X
New York	X		X	X	X		X
North Carolina	X			X	X	X	X
Ohio	X			X			X
Oregon	X		X	X	X	X	X
Pennsylvania	X		X	X	X		X
Puerto Rico	X			X	X		X
South Carolina	X		X	X	X		X
Tennessee	X			X	X		X
Washington		X					

VI. GRANTEE PRODUCTS

All grantees produced deliverables or products with LMI grant funds. These products fall into the following categories: research reports, employment projections, career tools for green jobs, and infrastructure improvements (Table VI.1). Many developed a variety of products within these categories that enhanced both the understanding of and access to information on green jobs.

A. Research Reports

Twenty-nine of the 30 grantees published research reports addressing a range of topics, such as the results from survey research and literature reviews on green-job definitions to descriptions of employment-projection methodologies. For example, Delaware published a report with substantive conclusions about the labor market from its green-jobs survey. Florida created two types of reports: (1) a statewide report on survey results, such as the number of green jobs, the number of projected green jobs, certifications/credentials, and required skills and (2) customized reports with relevant information for each specific workforce region.

B. Employment Projections

Twenty-eight grantees reported projections for labor demand, skill needs, or labor supply for green jobs. Of these, 27 grantees delivered labor-demand projections. Fewer grantees (19) produced skill-needs projections, and still fewer (12) produced labor-supply projections. New York, which completed all three types of employment projections, analyzed estimates of job vacancies, skill requirements, and current employment projections and assessed the capacity of training providers to meet the future needs of green employers. Based on its survey work, Missouri produced long-term employment projections for in-demand green occupations and industries at the state and sub-state level. The completeness and rigor of projections varied across grantees.

Although 27 grantees produced state or regional employment projections, one focused its efforts on enhancing nationwide projection capabilities. Prior to the grant, the Projections Improvement Consortium, consisting of Nevada, Colorado, Florida, Illinois, New York, North Carolina, Texas, and Utah, developed projections software, which has been widely used for more than a decade. However, the developer indicated that the software would be discontinued in 2015. Therefore, the Consortium designed a software package providing a common methodology for use by all states' projection programs. In addition to designing new projections software, the Consortium developed a tool and enhancements that allow states to easily access information on current and future demand for labor and skills.

Table VI.1. State LMI Improvement Grantee Products

		Employment Projections			Green Job Career Tools				Infrastructure Improvements			
	Research Reports	Projection of Labor Demand	Projection of Skill Needs	Projection of Labor Supply	Occupational Profiles	Career Pathways, Skills Transferability, and Rapid Re-Employment Tools	Inventory Training Programs	Training Modules and Curricula	Flag Green Jobs in Exchanges and Online Job Banks	Labor-Exchange Enhancements	Posting Real-Time Jobs	Use of Real-Time LMI
Consortia												
Driving Change	X		X			X	X					
Gulf Coast Green Jobs Consortium	X	X	X			X	X		X	X	X	X
MARC	X	X	X	X	X	X			X	X	X	X
Northern Plains and Rocky Mountain Consortium	X	X							X		X	X
Projections Improvement Consortium		X	X									
Northeast Consortium	X	X	X	X								X
Individual States												
Alabama	X	X	X	X		X			X	X	X	X
Alaska	X				X	X		X	X	X		
Arizona	X	X	X	X	X				X	X		
California	X	X	X	X	X	X	X	X	X	X		
Delaware	X	X	X	X		X	X		X			
Florida	X	X				X			X	X		X
Georgia	X	X	X	X	X				X		X	
Hawaii	X	X	X	X	X	X	X		X		X	X
Idaho	X	X		X	X	X	X	X	X	X		
Iowa	X				X	X	X	X	X	X		X
Kentucky	X	X							X	X		X
Minnesota	X	X	X		X	X	X	X				
Missouri	X	X			X	X	X					X
New Jersey	X	X	X			X	X		X	X		X
New Mexico	X	X			X	X	X		X	X	X	
New York	X	X	X	X			X		X			
North Carolina	X	X	X	X	X		X		X	X		X
Ohio	X	X	X			X	X		X			
Oregon	X	X	X	X	X	X	X	X	X	X		
Pennsylvania	X	X				X	X		X			X
Puerto Rico	X	X	X		X	X			X			X
South Carolina	X	X	X		X	X	X		X			X
Tennessee	X	X			X	X		X	X	X		
Washington	X	X			X				X	X		X

C. Career Tools for Green Jobs

All but four grantees produced career tools for green jobs, which included occupational profiles, career pathways and other skills transferability and rapid reemployment tools, inventories of training programs, and training modules and curricula. In Appendix A, we have included a glossary with definitions of these career tools. While the glossary includes the standard definition of these career tools, grantees used terms like "career pathway" to refer to a variety of products. Below, we provide the number of grantees that reported developing each product and an example of a product within each category.

- **Occupational profiles**. Seventeen grantees created occupational profiles, many of which were based on information gathered from surveys, interviews, focus groups, and other sources. For example, North Carolina created occupational profiles for green jobs using data collected from its green-jobs survey. The profiles, which included information on job titles, average wages, educational requirements, and required skills and certificates, are available on the North Carolina Demand Driven Data Delivery (D4) Internet application. Arizona also profiled occupations based on results from its green-jobs survey of employers. Arizona developed occupational profiles for 36 green occupations with projected growth from 2008-2018.

- **Career pathways, skills transferability, and rapid reemployment tools**. Career-pathway tools, skills transferability, and rapid reemployment tools were the most prevalent grantee career tools, with 21 grantees involved in this activity. Some developed general green pathways that could lead a worker in any field to a green job. Others focused on specific workers, such as the autoworkers targeted by Driving Change. This consortium produced a skills transferability tool for dislocated workers from the auto industry. The tool targets local Workforce Investment Boards and One-Stop Career Centers. The project included the creation of a consortium website with tools to help dislocated workers in the auto industry access information on alternative career pathways. Several grantees used the Transferable Occupational Relationship Quotient (TORQ) analytical tool—a tool that helps jobseekers learn how their skills could transfer to new types of jobs. Alabama, for example, used TORQ to produce reports on the occupational skills, knowledge, and abilities needed for green occupations.

- **Inventories of training programs**. Seventeen grantees created inventories of training programs for green jobs. Through an educator survey and interviews with training providers, Ohio created an inventory of green training programs in the state. The survey gathered information on the number of students, number of credit hours, and credential requirements.

- **Training modules and curricula**. Seven grantees developed training modules and curricula that address various topics, such as training for a specific green occupation or training on how to use the new LMI website or software. For example, Idaho partnered with Idaho State University's Energy System Technology and Education Center to develop and implement a nine-month renewable-energy certificate program, to be offered in the evenings and online.

D. Infrastructure Improvements

All but three grantees implemented some form of LMI infrastructure improvements. These improvements included flagging green jobs in labor exchanges, enhancing state or regional labor exchanges, posting real-time job listings, and using real-time LMI (see Table VI.1).

- **Flagging green jobs.** Twenty-five grantees flagged green jobs in online job banks. Many used O*NET-SOC classifications to flag green jobs that matched their chosen definition.
- **State or regional labor-exchange enhancements.** Sixteen grantees enhanced their labor exchanges. Tennessee, for example, created a new job-seeker and employer self-service modu**le** on the LMI website, which provides easier access to labor-exchange information. MARC developed a regional green-jobs portal that connects the Washington, DC; Maryland; and Virginia labor exchanges in a single access point. Alabama also created a green-jobs portal that allows employers and workforce professionals to post job openings directly to the site. The portal also extracts job vacancies from various sources for posting.
- **Posting real-time job listings.** Seven grantees used grant funds to post real-time job listings on their labor exchanges or SWA websites. Sometimes referred to as "web scraping" or "spidering," this technology collects job postings from an array of sources on the internet and posts them on a state's labor exchange. Georgia, for example, worked with a vendor to develop a green-jobs microportal on its website, where job seekers and employers can access the LMI database with a username and password.
- **Use of real-time LMI.** Sixteen grantees used real-time LMI to enhance the accessibility and usability of up-to-date information on green jobs. New Jersey developed a tool that matches real-time LMI job postings with jobseekers based on skills and abilities included in their resumes. The tool allows jobseekers to search for jobs matching their resumes, and it also allows employers to search for candidates based on resume matching. The Northeast Consortium developed two guides for users of real-time LMI: one is targeted at analysts implementing real-time LMI and the other is targeted at public users of real-time LMI.

VII. DISSEMINATION STRATEGIES

As required by the grant, all 30 grantees developed a dissemination plan. These plans involved a variety of media, forums, and tools to disseminate information and grant products, including electronic tools, social media, and conference presentations (Table VII.1).

A. Electronic Tools

All grantees developed strategies to improve electronic access to LMI on green jobs and provided this information on their state LMI websites or created new modules or portals for their websites. Others created completely new information-delivery systems. For example, New Mexico developed a green-jobs portal that houses all of the information collected through the LMI grant in addition to information on its SESP grant.

B. Social Media

Five grantees embraced social media to broadcast information on green jobs and available products. For example, Idaho designed a social-media campaign targeted to "Generation Y," the name given to the group of people born between the late 1970s and the early 2000s—to increase their use of available electronic tools, including the enhanced online job bank and catalog of green-job training programs. Oregon used Twitter to publicize its efforts and created a blog to target younger users.

C. Conference Presentations

Twenty-four grantees presented information on green jobs at conferences or hosted conferences to present their findings and engage stakeholders.

- **Presented results at conferences.** Several grantees suggested in progress reports that these forums allowed them to share information generated by grant activities, such as green-jobs identification and career tools, with various stakeholders, including, for example, government officials and green employers. For instance, Hawaii participated in conferences, presentations, and expositions aimed at these stakeholders.
- **Hosted conferences to present findings and engage stakeholders.** Puerto Rico hosted a conference to disseminate information on the green economy to relevant stakeholders. The conference included presentations on the green-jobs survey results, green-economy implications for the labor market, and LEED construction. Driving Change also organized a conference to present grant findings, provide stakeholders with an opportunity to present their work, and create a forum for stakeholders to network and share ideas. For the grantee, the conference provided an opportunity to present LMI-funded grant work. Stakeholders showcased green technologies not funded through the grant.

Table VII.1. Grantees' Dissemination Strategies

	Electronic Tools	Social Media	Conference Presentations
Consortia			
Driving Change	X	X	X
Gulf Coast Green Jobs Consortium	X		X
MARC	X		X
Northern Plains and Rocky Mountain Consortium	X		X
Projections Improvement Consortium	X		X
Northeast Consortium	X		X
Individual States			
Alabama	X		X
Alaska	X		
Arizona	X		
California	X		X
Delaware	X		X
Florida	X		X
Georgia	X		
Hawaii	X		X
Idaho	X	X	X
Iowa	X		
Kentucky	X	X	X
Minnesota	X		X
Missouri	X		
New Jersey	X		
New Mexico	X		X
New York	X		X
North Carolina	X		X
Ohio	X		X
Oregon	X	X	X
Pennsylvania	X		X
Puerto Rico	X	X	X
South Carolina	X		X
Tennessee	X		X
Washington	X		X

VIII. CONCLUSION

The grantees pursued ambitious plans, involving a wide range of LMI activities, to support the development and dissemination of timely, relevant, accessible information about the green economy. Grantees pursued these goals as statistical agencies developed an official definition of green jobs.

Over the course of the grant, grantees experienced several challenges. In their progress reports, grantees indicated that the limited time line to complete activities and products was particularly challenging. Many reported challenges hiring staff and managing procurements within the 18-month period. The limited time afforded under the grant also raised questions about the ability of grantees to produce efforts that would be sustainable over time. Despite these challenges, the LMI grants enhanced grantees' organizational capacity, provided them and their stakeholders with a better understanding of the green economy, and ultimately moved LMI forward at state and national levels. Each of these outcomes is discussed in more detail below.

- **Enhanced organizational capacity.** LMI staff developed or strengthened partnerships with a variety of organizations, specifically other state agencies, educational institutions, and both non-profit and for-profit organizations. Many of these partnerships will be sustained after the grant period, potentially improving future LMI efforts. Also, the large infusion of funds through the LMI grants provided simultaneous funding to many grantees. This enabled LMI shops to work on similar activities and products concurrently, fostering collaboration across states and leading to products that served multi-state labor markets.
- **Understanding the green economy.** Grantees gained a better understanding of the local and state green economies through their activities and products. The LMI grants helped SWAs define green jobs in a local context. Grantees quantified the number of green jobs and also determined the skills and credentials necessary for those jobs. Gaining an understanding of the green economy at the local level helped grantees develop products and tools to both successfully train jobseekers for green jobs and help workers transition to green occupations.
- **Moving LMI forward.** In addition to helping grantees gain an understanding of the green economy, the LMI grants helped move LMI forward at state and national levels. The infusion of funds allowed state LMI shops to enhance their existing state infrastructures and increased interstate LMI infrastructure through the development of regional labor exchanges. At the national level, the LMI grants enhanced labor projections capabilities. Additionally, the LMI grants resulted in a better understanding of real-time LMI and the process for successfully using it.

APPENDIX: GLOSSARY

Career Ladder/Lattice

Career ladders and lattices consist of a group of related jobs that comprise a career. They often include a pictorial representation of job progression in a career as well as detailed descriptions of the jobs and the experiences that facilitate movement between jobs. Career ladder/lattices are not necessarily organization-specific; they frequently span multiple organizations because movement within one organization may not be possible. Career ladders display only vertical movement between jobs. In contrast, career lattices contain both vertical and lateral movement between jobs and may reflect more closely the career paths of today's work environment.[12]

Career Pathway

Career pathways articulate the learning requirements, across educational and training levels, through which a student can prepare for skilled employment in a specific industry cluster and, from there, to continued education and career progression. Career pathways are developed through partnerships among secondary and postsecondary education, employers, and community agencies. Career pathways serve the emerging and incumbent workforce, from high school students to unemployed and underemployed adults.[13]

Labor Exchange

Labor exchanges are interactive websites designed to assist job seekers and employers to find industry and occupation information in their local area.

North American Industry Classification System

Standard used by federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.[14]

Occupational Profile

Under O*NET's framework, occupational profiles include worker characteristics, worker requirements, experience requirements, occupation-specific information, workforce characteristics, and occupational requirements.[15]

O*NET

The Occupational Information Network (O*NET) program is the nation's primary source of occupational information. Central to the project is the O*NET database, containing information on hundreds of standardized and occupation-specific descriptors. The database, which is available to the public at no cost, is continually updated by surveying a broad range of workers

[12] http://www.careeronestop.org/competencymodel/careerpathway/CPWCllInstructions.aspx

[13] http://lwd.dol.state.nj.us/labor/lpa/lbrdmand/GlossaryOfTerms.html

[14] http://www.census.gov/eos/www/naics/

[15] http://www.onetcenter.org/content.html

from each occupation. Information from this database forms the heart of O*NET OnLine, an interactive application for exploring and searching occupations. The database also provides the basis for our the Career Exploration Tools, a set of valuable assessment instruments for workers and students looking to find or change careers. O*NET is being developed under the sponsorship of DOL's ETA the U.S. Department of Labor/Employment and Training Administration (USDOL/ETA) through a grant to the North Carolina Employment Security Commission.

Real−Time LMI

The Brookings Institution LMI Forum defined real-time LMI as "labor- market intelligence derived from the analysis of job postings and resumes placed into public and private labor exchanges. It is real time because it can be based on data pulled from the Internet on a daily basis. It is labor- market intelligence because it can provide indications of supply and demand trends, emerging occupations, current and emerging skill requirements, and market-based demand for education and certifications."[16]

Skills Transferability Tools

Skills transferability tools help dislocated workers use pre-existing skills to transition into a high-growth, high-demand occupation. Include information on required knowledge, skills, and abilities, wage differentials, training requirements, and credentials.

Standard Occupational Classification Code

The Standard Occupational Classification (SOC) code system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. All workers are classified into detailed occupations according to their occupational definition.[17]

Web Portal

Web portals are websites used to house grantee products, disseminated information, and connect users to LMI tools.

Web Scraping

Web scraping or spidering, often used synonymously, refer to using software that aggregate online job postings from various sources and code the job postings based on NAICS and SOC codes.

[16] http://www.brookings.edu/~/media/research/files/speeches/2010/9/27%20labor%20statistics%20reamer/0927_labor_statistics_vollman%20reamer/0927 labor statistics vollman

[17] http://lwd.dol.state.nj.us/labor/lpa/lbrdmand/GlossaryOfTerms.html

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