



# **KANSAS CITY REGION GREEN JOBS REPORT 2010**

**Kansas City & Vicinity and Eastern Jackson County  
Workforce Investment Boards**

## **“GREEN WAYS TO GREEN CAREERS”**



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### **Kansas City Region Green Jobs Survey**

# Executive Summary

This report is the result of project funded by a grant to the FEC operated Kansas City & Vicinity (KCV) and Eastern Jackson County (EJAC) WIBs to partner with the Missouri Department of Economic Development (DED) - Missouri Economic Research and Information Center (MERIC) to collect information about green jobs in order to better identify local trends and insights about regional green economies. The project involved the development of the Green Training Inventory, conducting Green Employer Survey, and convening of a local Green Taskforce. The Taskforce which included representatives of green businesses, local economic development entities and chambers of commerce, workforce partners, government partners, and other community stakeholders, was designed to plan how to best meet the needs of growing green employers, to solicit support and cooperation for the research effort and to help determine the best strategies for identifying green skill gaps, and the jobs and competencies required to address those gaps. The survey which is the initial step of an on-going effort to respond to the green economy highlighted the need for the Advisory Council to provide awareness of green to the community and do its part to help guide the workforce community in addressing the workforce needs of the green economy.

## Introduction

This report is the result of project funded by a grant to the FEC operated Kansas City & Vicinity (KCV) and Eastern Jackson County (EJAC) WIBs to partner with the Missouri Department of Economic Development (DED) - Missouri Economic Research and Information Center (MERIC) to collect information about green jobs in order to better identify local trends and insights about regional green economies. The KCV and EJAC WIBs representing the 5-county Kansas City region coordinated the development and convening of a local Green Taskforce and the development of a Green Training Inventory and Green Employer Survey to provide the workforce data to conduct a green skills gap analysis. The FEC contracted with the University of Missouri-Kansas City Center for Economic Information (CEI) to conduct an employer survey. The survey was designed to identify required skills for green jobs and to document the progress of the green economy in the Kansas City region.

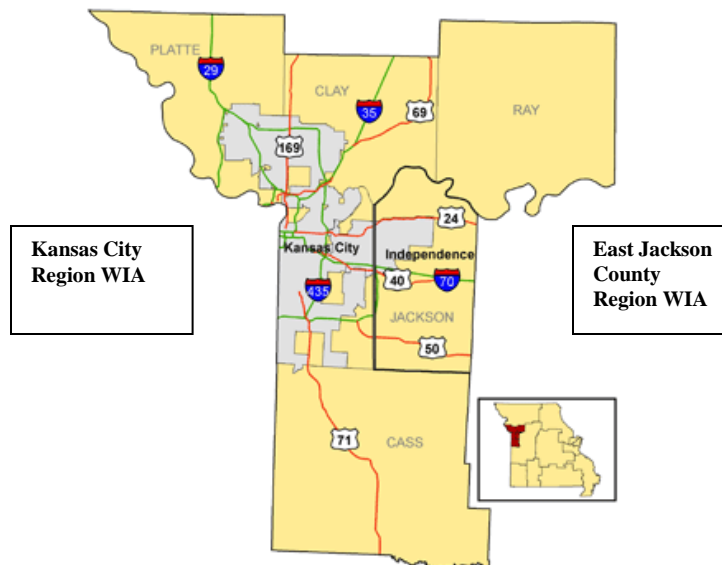
The FEC operated KCV and EJAC WIBs convened a local Green Taskforce for the purpose of planning how to best meet the needs of growing green employers, to solicit support and cooperation for the research effort and to help determine the best strategies for identifying green skill gaps, and the jobs and competencies required to address those gaps. The Taskforce included representatives of green businesses, local economic development entities and chambers of commerce, educational partners such as Metropolitan Community College and University of Central Missouri Workforce Central, workforce partners in Missouri and Kansas, such as Mid America Regional council and Kansas Workforce Partnership, governmental partners, including city and federal weatherization, including Metropolitan Energy Center and other community stakeholders, including partners from the Green Impact Zone, a 150 block area in Kansas City's urban core designated by U.S. Congressman Emanuel Cleaver as a national experiment in

investing in sustainability, energy efficiency, renewable energy and green jobs. The Green Advisory Board met several times over the year. This report documents the initial response to the work of the Green Career Advisory Council. The Council expressed a commitment to continue this work. Strategies and specific actions are planned to continue to meet and to share information regarding on-going and planned green projects in the region. The Goals and Action Items highlighted in this report are part of the on-going effort of this Advisory Group to help provide awareness to the community and help guide the workforce community of what it means to be “Green”.

## Kansas City and East Jackson WIB region

The 5-county Kansas City Region includes Cass, Clay, Jackson, Platte, and Ray Counties in Missouri. The 5-county population was 1,148,296 in 2009. Jackson County, the largest county with 705,708 residents, accounts for more than 60 % of the population. The largest cities in the region are Kansas City and Independence. The region encompasses two Workforce Investment Boards: Kansas City and Vicinity Workforce Investment Region includes Cass, Clay, Platte, and Ray Counties, and the East Jackson County includes all of Jackson County, exclusive of the City of Kansas City, Missouri.

Area	Population 2009
Cass County	100,184
Clay County	228,358
Jackson County	705,708
Platte County	90,688
Ray County	23,358
<b>Kansas City Summary</b>	<b>1,148,296</b>



Kansas City is an economic and employment center for the Kansas City region of Missouri. The largest concentrations of employment in the Kansas City Area are found in Kansas City, Independence, and Lee’s Summit. The Region’s civilian labor force was 548,450 in December 2010. The 5-county Kansas City Region unemployment rate was 9.8% in December 2010. Among the counties, Jackson County recorded the highest unemployment with 10.6 %, followed by Cass with 9.2%. The lowest rate was Platte County with 8.1%. Among the cities in the region, the highest rate was the City of Kansas City with 10.3%, followed by Independence with 10.1%, and Grandview with 9.8%. The lowest rate was Liberty with 7.1 %.

Local Area Unemployment Statistics December 2010				
Area	Civilian Labor Force	Employment	Unemployment	Unemployment Rate
Cass County	48,973	44,471	4,502	9.2%
Clay County	113,951	104,270	9,681	8.5%
Jackson County	327,007	292,282	34,725	10.6%
Platte County	47,393	43,552	3,841	8.1%
Ray County	11,126	9,985	1,141	10.3%
<b>Kansas City Summary</b>	<b>548,450</b>	<b>494,560</b>	<b>53,890</b>	<b>9.8%</b>

Area	December 2010			
	Labor Force	Employment	Unemployment	Rate
Independence (city)	54,154	48,692	5,462	10.1%
Liberty City	15,406	14,311	1,095	7.1%
Kansas City (city)	220,170	197,502	22,668	10.3%
Grandview (city)	12,678	11,436	1,242	9.8%
Lee’s Summit (city)	43,217	40,082	3,135	7.3%
Blue Springs (city)	29,800	27,454	2,346	7.9%
Gladstone (city)	15,089	13,778	1,311	8.7%

According to 2009 Payroll Employment and Wages data produced by MERIC in cooperation with U.S. Department of Labor, Bureau of Labor Statistics, the 5-county region has a broad mix of industries. The top 5 industries in the region NAICS 62 - Health care and social assistance, with 54,020 jobs, 13.4% of total private payroll jobs, NAICS 44 - Retail Trade, 53,903, 13.3%, NAICS 72 - Accommodation and food services, 45,098, 11.2%, NAICS 54 - Professional and technical services, 33,169 jobs, 8.2%, and NAICS 31 – Manufacturing, 32,653, 8.1%.

## Occupational Trends in Green Sector

The National Center for O\*NET research has identified green economic sectors occupations in the O\*NET-SOC system. Since major work activities of the green economy cover a broad

spectrum, to efficiently and effectively determine the potential occupational implications of green technology, workplace activities are categorized under eleven different green economy sectors:

Renewable Energy Generation: activities related to developing and using energy sources such as solar, wind, geothermal, and biomass. This sector also includes traditional, non-renewable sources of energy undergoing significant green technological changes (e.g., oil, coal, gas, and nuclear).

Transportation: activities related to increasing efficiency and/or reducing environmental impact of various modes of transportation including trucking, mass transit, and freight rail.

Energy Efficiency: activities related to increasing energy efficiency (broadly defined), making energy demand response more effective, constructing "smart grids," and other energy efficient activities.

Green Construction: activities related to constructing new green buildings, retrofitting residential and commercial buildings, and installing other green construction technology.

Energy Trading: financial services related to buying and selling energy as an economic commodity, as well as carbon trading projects.

Energy and Carbon Capture and Storage: activities related to capturing and storing energy and/or carbon emissions, as well as technologies related to power plants using the integrated gasification combined cycle (IGCC) technique.

Research, Design, and Consulting Services: encompasses "indirect jobs" to the green economy which includes activities such as energy consulting or research and other related business services.

Environment Protection: activities related to environmental remediation, climate change adaptation, and ensuring or enhancing air quality.

Agriculture and Forestry: activities related to using natural pesticides, efficient land management or farming, and aquaculture.

Manufacturing: activities related to industrial manufacturing of green technology as well as energy efficient manufacturing processes.

Recycling and Waste Reduction: activities related to solid waste and wastewater management, treatment, and reduction, as well as processing recyclable materials.

Governmental and Regulatory Administration: activities by public and private organizations associated with conservation and pollution prevention, regulation enforcement, and policy analysis and advocacy

The following table displays a listing of all green jobs data, classified according to the six-digit O\*NET-SOC occupations in the eleven green economic sectors listed above. Utilizing occupational projections data produced by MERIC provides a first look at the potential contribution of green jobs in the Kansas City region. These tables show projected green jobs growth from 2008 to 2018, annual openings, the education level or amount of experience required, and the average and entry level annual wage for the Kansas City region.

According to this 2008-2018 projections data, the largest industry sectors accounting for green jobs in 2008 are O\*NET-SOC 47 - Construction and Extraction Occupations, 21,780, O\*NET-SOC 53 - Transportation and Material Moving Occupations, 20,510, O\*NET-SOC 51 - Production Occupations, 17,700, O\*NET-SOC 49 - Installation, Maintenance, and Repair Occupations, 15,250, and O\*NET-SOC 43 - Office and Administrative Support Occupations, 14,400. Green jobs are projected to account for more than 37,800 total job openings over the

2008-2018 projection period, 46.3% are estimated to result from Green Increased Demand, where the impact of green economy activities and technologies is an increase in the employment demand for an existing occupation, and this impact does not entail significant changes in the work and worker requirements of the occupation, 38.3% are expected to result from Green Enhanced Skills, where the impact of green economy activities and technologies results in a significant change to the work and worker requirements of an existing O\*NET-SOC occupation and may or may not result in an increase in employment demand for the occupation, and the essential purposes of the occupation remain the same, but tasks, skills, knowledge, and external elements, such as credentials, have been altered, and 15.4% are expected to result from Green New & Emerging, where the impact of green economy activities and technologies is sufficient to create the need for unique work and worker requirements, which results in the generation of a new occupation relative to the O\*NET taxonomy, and this new occupation could be entirely novel or "born" from an existing occupation. The top three green economic sectors expected to produce the largest number of job openings over the projection period are Green Construction, 10,210, Research, Design, and Consulting Services, 6,543, and Manufacturing, 5,353.

**Green Economy Sector**

**Kansas City Metro Region Occupational Projections 2008-2018**

Occupational	Employment		Change	Annual		Annual Wages			
	2008	2018	2008-2018	Openings	Education/Training Typically Required	2008			
	Estimated	Projected	Percent	Total		Mean	Entry		
<b>O*Net Sectors</b>	<b>Code</b>	<b>Title</b>							
Governmental and Regulatory	11-1011	Chief Executives	1,460	1,410	-3.76%	41	Bachelor's or higher degree, plus work experience	\$149,080	\$75,580
Agric and Forestry; Energy Efficiency	11-1021	General and Operations Managers	6,540	6,250	-4.38%	189	Bachelor's or higher degree, plus work experience	\$96,030	\$46,890
Research, Design, and Consulting Services	11-2011	Advertising and Promotions Managers	160	160	-1.84%	4	Bachelor's or higher degree, plus work experience	\$78,080	\$39,840
Research, Design, and Consulting Services	11-2021	Marketing Managers	590	660	11.90%	20	Bachelor's or higher degree, plus work experience	\$111,260	\$61,590
Manufacturing	11-3051	Industrial Production Managers	380	350	-7.41%	13	Work experience in a related occupation	\$87,740	\$51,720
Transportation	11-3071	Transportation, Storage, and Distribution Ma	390	350	-10.94%	11	Work experience in a related occupation	\$79,210	\$47,300
Environment Protection; Green	11-9021	Construction Managers	1,380	1,560	12.99%	29	Bachelor's degree	\$82,580	\$46,050
Environment Protection; Research, Design, and Consulting Services	11-9041	Engineering Managers	480	500	4.21%	12	Bachelor's or higher degree, plus work experience	\$104,880	\$77,070
Environment Protection	11-9121	Natural Sciences Managers	140	150	7.86%	5	Bachelor's or higher degree, plus work experience	\$105,450	\$64,290
Governmental and Regulatory Admin	11-9199	Managers, All Other	1,780	1,800	0.73%	47	Work experience in a related occupation	\$89,710	\$48,000
Agriculture and Forestry	13-1021	Purchasing Agents and Buyers, Farm Produu	90	80	-5.88%	2	Long-term on-the-job training	\$40,260	\$25,890
Research, Design, and Consultg Services	13-1022	Wholesale and Retail Buyers, Except Farm F	800	750	-5.90%	20	Long-term on-the-job training	\$47,920	\$26,580
Governmental and Regulatory	13-1041	Compliance Officers, Except Agriculture, Coi	1,140	1,270	10.76%	24	Long-term on-the-job training	\$50,250	\$31,510
Energy Efficiency; Green Constr; Resch,	13-1073	Training and Development Specialists	1,010	1,230	21.05%	47	Bachelor's or higher degree, plus work experience	\$49,530	\$30,320
Mfg; Rsrch, Dsgn, Constg Svces; Transp	13-1081	Logisticians	290	300	4.56%	7	Bachelor's degree	\$65,780	\$43,810
Energy Efficiency; Govtl and Reg Admin	13-1199	Business Operations Specialists, All Other	3,320	3,390	2.35%	82	Bachelor's degree	\$60,870	\$33,350
Engy Eff; Govtl and Reg Adm; Grn Const;	13-2051	Financial Analysts	820	980	20.74%	32	Bachelor's degree	\$73,470	\$42,770
Research, Design, and Consulting Services	13-2052	Personal Financial Advisors	1,120	1,440	28.89%	44	Bachelor's degree	\$91,280	\$37,700
Research, Design, and Consulting Services	13-2099	Financial Specialists, All Other	490	500	2.68%	10	Bachelor's degree	\$64,350	\$40,280
Research, Design, and Consulting Services	15-1032	Computer Software Engineers, Systems Sof	1,270	1,700	33.36%	54	Bachelor's degree	\$78,380	\$56,420
Research, Design, and Consulting Services	15-1099	Computer Specialists, All Other	1,290	1,350	4.50%	34	Associate degree	\$74,510	\$50,790
Green Construction; Research, Design, and	17-1011	Architects, Except Landscape and Naval	780	860	10.36%	21	Bachelor's degree	\$65,800	\$39,050
Agriculture and Forestry; Environment	17-1012	Landscape Architects	70	80	15.71%	2	Bachelor's degree	ND	ND
Research, Design, and Consulting Services;	17-2011	Aerospace Engineers	ND	ND	ND	4	Bachelor's degree	ND	ND
Research, Design, and Consulting Services	17-2041	Chemical Engineers	130	130	-0.79%	3	Bachelor's degree	\$90,460	\$50,150
Green Construction; Renewable Energy	17-2051	Civil Engineers	1,340	1,600	19.40%	49	Bachelor's degree	\$75,810	\$51,180
Energy Efficiency; Green Construction;	17-2071	Electrical Engineers	540	550	0.74%	12	Bachelor's degree	\$79,160	\$56,330
Research, Design, and Consulting Services;	17-2072	Electronics Engineers, Except Computer	510	520	0.78%	12	Bachelor's degree	\$79,900	\$57,420
Environment Protection; Governmental and	17-2081	Environmental Engineers	280	360	31.88%	15	Bachelor's degree	\$71,920	\$49,610
Manufacturing; Research, Design, and	17-2111	Health and Safety Engineers, Except Mining	90	100	12.09%	3	Bachelor's degree	\$70,500	\$48,270
Research, Design, and Consulting Services	17-2112	Industrial Engineers	620	700	12.38%	24	Bachelor's degree	\$71,350	\$51,600
Energy Efficiency; Green Construction;	17-2141	Mechanical Engineers	670	690	3.61%	19	Bachelor's degree	\$73,210	\$52,160
Governmental and Regulatory	17-2161	Nuclear Engineers	ND	ND	ND	2	Bachelor's degree	ND	ND
Manufacturing; Research, Design, and	17-2199	Engineers, All Other	610	600	-1.32%	13	Bachelor's degree	\$83,480	\$58,420
Green Construction	17-3011	Architectural and Civil Drafters	670	690	3.75%	17	Postsecondary vocational award	\$44,210	\$29,390
Manufacturing	17-3023	Electrical and Electronic Engineering Techni	390	400	1.27%	8	Associate degree	\$53,450	\$35,420
Manufacturing	17-3024	Electro-Mechanical Technicians	ND	ND	ND	0	Associate degree	\$49,540	\$43,190
Environment Protection	17-3025	Environmental Engineering Technicians	30	40	33.33%	2	Associate degree	\$46,260	\$28,010
Manufacturing	17-3026	Industrial Engineering Technicians	160	170	1.23%	3	Associate degree	\$42,680	\$28,960

**Green Economy Sector**

**Kansas City Metro Region Occupational Projections 2008-2018**

O*Net Sectors	Occupational Code	Occupational Title	Employment		Change	Annual		Annual Wages	
			2008	2018	2008-2018	Openings	Education/Training Typically Required	2008	
			Estimated	Projected	Percent	Total		Mean	Entry
Transportation	17-3027	Mechanical Engineering Technicians	70	70	-1.45%	1	Associate degree	\$50,900	\$35,700
Manufacturing; Research, Design, and Environment Protection	17-3029	Engineering Technicians, Except Drafters, A	180	180	0.56%	3	Associate degree	\$56,230	\$35,120
Environment Protection	19-1023	Zoologists and Wildlife Biologists	50	50	-1.92%	2	Bachelor's degree	\$48,280	\$33,170
Environment Protection; Governmental and Environment Protection; Research, Design, Manufacturing; Research, Design, and Manufacturing; Research, Design, and Environment Protection	19-1031	Conservation Scientists	140	130	-6.57%	2	Bachelor's degree	\$50,340	\$31,310
Environment Protection; Research, Design, Manufacturing; Research, Design, and Manufacturing; Research, Design, and Environment Protection	19-2021	Atmospheric and Space Scientists	60	60	-3.51%	1	Bachelor's degree	\$87,130	\$66,270
Manufacturing; Research, Design, and Environment Protection	19-2031	Chemists	290	270	-6.51%	10	Bachelor's degree	\$64,590	\$39,690
Manufacturing; Research, Design, and Environment Protection	19-2032	Materials Scientists	ND	ND	ND	1	Bachelor's degree	\$71,110	\$47,180
Environment Protection	19-2041	Environmental Scientists and Specialists, Inc	240	310	28.22%	14	Master's degree	\$48,820	\$34,190
Environment Protection; Research, Design, Environment Protection; Research, Design, Research, Design, and Consulting Services	19-2042	Geoscientists, Except Hydrologists and Geo	40	50	17.95%	2	Master's degree	\$60,820	\$38,820
Environment Protection; Research, Design, Research, Design, and Consulting Services	19-2043	Hydrologists	20	20	-5.00%	1	Master's degree	\$70,360	\$48,940
Environment Protection	19-2099	Physical Scientists, All Other	ND	ND	ND	2	Bachelor's degree	ND	ND
Governmental and Regulatory	19-3011	Economists	60	50	-5.36%	2	Master's degree	\$83,400	\$48,660
Governmental and Regulatory	19-3051	Urban and Regional Planners	80	90	3.66%	2	Master's degree	\$53,400	\$39,080
Governmental and Regulatory	19-3099	Social Scientists and Related Workers, All O	ND	ND	ND	4	Master's degree	ND	ND
Agriculture and Forestry	19-4011	Agricultural and Food Science Technicians	140	150	10.95%	7	Associate degree	\$38,030	\$26,460
Manufacturing	19-4031	Chemical Technicians	140	130	-5.93%	3	Associate degree	\$43,670	\$29,310
Research, Design, and Consulting Services	19-4041	Geological and Petroleum Technicians	ND	ND	ND	0	Associate degree	ND	ND
Renewable Energy Generation	19-4051	Nuclear Technicians	ND	ND	ND	0	Associate degree	ND	ND
Environment Protection	19-4091	Environmental Science and Protection Techn	70	90	22.86%	5	Associate degree	\$39,830	\$30,940
Environment Protection	19-4093	Forest and Conservation Technicians	100	100	-4.90%	4	Associate degree	\$27,270	\$17,780
Agriculture and Forestry; Research, Design, Governmental and Regulatory	19-4099	Life, Physical, and Social Science Technician	160	170	5.56%	8	Associate degree	\$39,460	\$21,530
Governmental and Regulatory	23-1022	Arbitrators, Mediators, and Conciliators	30	30	6.45%	1	Bachelor's or higher degree, plus work experience	\$66,200	\$36,700
Environment Protection	25-9021	Farm and Home Management Advisors	0	0	0.00%	0	Bachelor's degree	\$40,810	\$30,620
Manufacturing; Research, Design, and Environment Protection; Research, Design, Environment Protection; Research, Design, Manufacturing; Research, Design, and Manufacturing	27-1021	Commercial and Industrial Designers	120	120	-0.81%	4	Bachelor's degree	\$55,600	\$36,220
Environment Protection; Research, Design, Environment Protection; Research, Design, Manufacturing; Research, Design, and Manufacturing	27-3022	Reporters and Correspondents	380	320	-16.75%	11	Bachelor's degree	\$41,930	\$20,100
Environment Protection; Research, Design, Manufacturing; Research, Design, and Manufacturing	27-3031	Public Relations Specialists	1,390	1,640	18.27%	58	Bachelor's degree	\$51,770	\$30,880
Manufacturing; Research, Design, and Manufacturing	29-9011	Occupational Health and Safety Specialists	220	230	2.69%	9	Bachelor's degree	\$58,030	\$35,880
Manufacturing	29-9012	Occupational Health and Safety Technicians	90	110	20.45%	5	Bachelor's degree	\$49,570	\$32,770
Environment Protection	33-3031	Fish and Game Wardens	ND	ND	ND	0	Associate degree	ND	ND
Energy Trading; Research, Design, and Energy Trading	41-3031	Securities, Commodities, and Financial Serv	1,810	1,960	8.58%	71	Bachelor's degree	\$86,510	\$31,510
Energy Trading	41-3099	Sales Representatives, Services, All Other	2,900	3,210	10.84%	103	Work experience in a related occupation	\$56,810	\$27,920
Manufacturing; Research, Design, and Research, Design, and Consulting Services	41-4011	Sales Representatives, Wholesale and Man	1,770	1,800	1.69%	44	Work experience in a related occupation	\$76,070	\$40,080
Research, Design, and Consulting Services	43-4051	Customer Service Representatives	9,200	10,550	14.70%	425	Moderate-term on-the-job training	\$30,990	\$20,230
Transportation	43-5011	Cargo and Freight Agents	490	480	-2.66%	11	Moderate-term on-the-job training	\$41,340	\$30,610
Transportation	43-5032	Dispatchers, Except Police, Fire, and Ambul	900	820	-9.62%	19	Moderate-term on-the-job training	\$33,390	\$21,810
Manufacturing	43-5061	Production, Planning, and Expediting Clerks	1,140	1,130	-1.05%	28	Moderate-term on-the-job training	\$40,840	\$26,210

Kansas City Metro Region Occupational Projections 2008-2018

O*Net Sectors	Occupational Code	Occupational Title	Employment		Change	Annual Openings	Education/Training Typically Required	Annual Wages	
			2008	2018	2008-2018			2008	
			Estimated	Projected	Percent	Mean	Entry		
Manufacturing; Research, Design, and Agriculture and Forestry	43-5071	Shipping, Receiving, and Traffic Clerks	2,670	2,400	-9.83%	66	Short-term on-the-job training	\$28,310	\$19,420
Agriculture and Forestry	45-1011	First-Line Supervisors/Managers of Farming, Agriculture and Forestry; Governmental and	40	40	2.63%	1	Work experience in a related occupation	\$48,570	\$34,410
	45-2011	Agricultural Inspectors	100	100	-3.85%	2	Work experience in a related occupation	\$39,810	\$28,200
<b>Green Economy Sector</b>									
Environment Protection	45-4011	Forest and Conservation Workers	ND	ND	ND	0	Moderate-term on-the-job training	ND	ND
Renewable Energy Generation	47-1011	First-Line Supervisors/Managers of Construc	1,600	1,830	13.92%	53	Work experience in a related occupation	\$62,280	\$40,620
Energy Efficiency; Green Construction	47-2011	Boilermakers	100	110	13.68%	3	Long-term on-the-job training	\$39,810	\$27,520
Green Construction	47-2031	Carpenters	5,400	5,900	9.22%	117	Long-term on-the-job training	\$45,750	\$26,280
Green Construction	47-2051	Cement Masons and Concrete Finishers	1,120	1,210	7.38%	36	Moderate-term on-the-job training	\$38,760	\$23,480
Green Construction	47-2061	Construction Laborers	4,300	5,080	18.25%	107	Moderate-term on-the-job training	\$38,620	\$23,240
Green Construction	47-2073	Operating Engineers and Other Construction	1,650	1,810	9.50%	44	Moderate-term on-the-job training	\$46,570	\$30,390
Green Construction	47-2111	Electricians	2,590	2,770	6.91%	81	Long-term on-the-job training	\$53,110	\$32,410
Energy Efficiency; Green Construction	47-2131	Insulation Workers, Floor, Ceiling, and Wall	110	120	9.43%	5	Moderate-term on-the-job training	\$34,280	\$23,520
Green Construction	47-2152	Plumbers, Pipefitters, and Steamfitters	2,020	2,250	11.13%	64	Long-term on-the-job training	\$54,240	\$32,640
Green Construction	47-2181	Roofers	720	710	-1.52%	12	Moderate-term on-the-job training	\$45,560	\$26,540
Green Construction; Manufacturing;	47-2211	Sheet Metal Workers	820	820	0.74%	20	Long-term on-the-job training	\$49,290	\$25,140
Green Construction; Manufacturing	47-2221	Structural Iron and Steel Workers	390	420	7.93%	9	Long-term on-the-job training	\$50,270	\$29,570
Green Construction	47-3012	Helpers--Carpenters	210	250	18.57%	8	Short-term on-the-job training	\$31,120	\$19,870
Governmental and Regulatory	47-4011	Construction and Building Inspectors	490	540	11.25%	16	Work experience in a related occupation	\$45,050	\$32,130
Environment Protection; Green	47-4041	Hazardous Materials Removal Workers	160	160	1.92%	4	Moderate-term on-the-job training	\$47,340	\$30,550
Transportation	47-4061	Rail-Track Laying and Maintenance Equipme	ND	ND	ND	3	Moderate-term on-the-job training	\$44,670	\$32,700
Renewable Energy Generation	47-4099	Construction and Related Workers, All Other	100	110	5.77%	5	Moderate-term on-the-job training	\$37,790	\$23,910
Renewable Energy Generation	47-5041	Continuous Mining Machine Operators	ND	ND	ND	0	Moderate-term on-the-job training	ND	ND
Manufacturing	49-1011	First-Line Supervisors/Managers of Mechani	1,470	1,460	-0.27%	38	Work experience in a related occupation	\$57,150	\$37,850
Manufacturing; Research, Design, and	49-2094	Electrical and Electronics Repairers, Comme	410	410	0.74%	7	Postsecondary vocational award	\$47,950	\$28,510
Transportation	49-3023	Automotive Service Technicians and Mechar	3,410	3,510	3.05%	75	Postsecondary vocational award	\$34,900	\$20,570
Energy Efficiency; Green Construction	49-9021	Heating, Air Conditioning, and Refrigeration I	1,020	1,270	24.34%	41	Long-term on-the-job training	\$40,880	\$26,120
Manufacturing	49-9041	Industrial Machinery Mechanics	940	1,020	8.19%	22	Long-term on-the-job training	\$43,550	\$29,080
Energy Efficiency; Environment Protection;	49-9042	Maintenance and Repair Workers, General	6,080	6,360	4.61%	122	Moderate-term on-the-job training	\$34,270	\$21,680
Manufacturing	49-9044	Millwrights	200	210	4.52%	5	Long-term on-the-job training	\$48,010	\$32,430
Energy Efficiency	49-9051	Electrical Power-Line Installers and Repairer	710	750	4.77%	28	Long-term on-the-job training	\$53,750	\$38,130
Green Construction	49-9098	Helpers--Installation, Maintenance, and Rep:	320	320	-0.31%	16	Short-term on-the-job training	\$26,640	\$18,290
Renewable Energy Generation	49-9099	Installation, Maintenance, and Repair Worke	690	720	3.62%	14	Moderate-term on-the-job training	\$34,740	\$22,460
Manufacturing	51-1011	First-Line Supervisors/Managers of Producti	1,980	1,860	-6.22%	27	Work experience in a related occupation	\$50,830	\$31,920
Manufacturing	51-2011	Aircraft Structure, Surfaces, Rigging, and Sy	ND	ND	ND	4	Moderate-term on-the-job training	ND	ND
Manufacturing	51-2022	Electrical and Electronic Equipment Assemb	380	320	-15.57%	6	Short-term on-the-job training	\$30,880	\$20,810
Manufacturing	51-2031	Engine and Other Machine Assemblers	280	240	-12.27%	6	Short-term on-the-job training	\$26,760	\$20,550

Kansas City Metro Region Occupational Projections 2008-2018

Occupational	Employment		Change	Annual		Annual Wages			
	2008	2018	2008-2018	Openings	Education/Training Typically Required	2008			
	Code	Title	Estimated	Projected	Percent	Total	Mean	Entry	
<b>O*Net Sectors</b>									
Green Construction; Manufacturing	51-2041	Structural Metal Fabricators and Fitters	460	450	-0.88%	10	Moderate-term on-the-job training	\$34,280	\$24,010
Manufacturing	51-2092	Team Assemblers	5,450	5,400	-0.88%	123	Moderate-term on-the-job training	\$26,470	\$18,410
Manufacturing	51-4011	Computer-Controlled Machine Tool Operator	520	550	5.98%	13	Moderate-term on-the-job training	\$30,460	\$21,580
<b>Green Economy Sector</b>									
Manufacturing	51-4031	Cutting, Punching, and Press Machine Setters	1,170	1,010	-14.40%	23	Moderate-term on-the-job training	\$30,350	\$21,480
Manufacturing	51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders	80	50	-28.00%	1	Moderate-term on-the-job training	\$30,180	\$23,540
Manufacturing; Renewable Energy	51-4041	Machinists	1,610	1,520	-6.02%	21	Long-term on-the-job training	\$35,630	\$24,090
Green Construction; Manufacturing	51-4121	Welders, Cutters, Solderers, and Brazers	1,920	1,860	-3.39%	59	Postsecondary vocational award	\$33,030	\$22,960
Renewable Energy Generation	51-8011	Nuclear Power Reactor Operators	ND	ND	ND	2	Long-term on-the-job training	ND	ND
Renewable Energy Generation	51-8012	Power Distributors and Dispatchers	50	50	4.17%	2	Long-term on-the-job training	\$61,190	\$52,950
Energy and Carbon Capture and Storage; Energy Efficiency	51-8013	Power Plant Operators	200	220	6.44%	8	Long-term on-the-job training	\$49,530	\$32,080
Manufacturing	51-8021	Stationary Engineers and Boiler Operators	100	100	6.25%	3	Long-term on-the-job training	\$42,720	\$26,770
Manufacturing	51-8091	Chemical Plant and System Operators	ND	ND	ND	3	Long-term on-the-job training	ND	ND
Renewable Energy Generation	51-8099	Plant and System Operators, All Other	ND	ND	ND	1	Long-term on-the-job training	ND	ND
Manufacturing	51-9011	Chemical Equipment Operators and Tenders	110	90	-19.44%	1	Moderate-term on-the-job training	\$41,970	\$30,850
Manufacturing; Renewable Energy	51-9012	Separating, Filtering, Clarifying, Precipitating, and Dissolving Machine Operators and Tenders	120	130	10.26%	2	Moderate-term on-the-job training	\$30,190	\$20,900
Manufacturing	51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	550	590	8.62%	14	Moderate-term on-the-job training	\$35,130	\$23,890
Governmental and Regulatory	51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	1,610	1,500	-6.82%	27	Moderate-term on-the-job training	\$35,580	\$22,090
Recycling and Waste Reduction	51-9199	Production Workers, All Other	1,110	1,210	8.17%	35	Moderate-term on-the-job training	\$29,410	\$18,200
Recycling and Waste Reduction	53-1021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers	500	490	-1.79%	9	Work experience in a related occupation	\$45,130	\$30,200
Transportation	53-3021	Bus Drivers, Transit and Intercity	670	650	-2.40%	12	Moderate-term on-the-job training	\$30,110	\$20,530
Transportation	53-3032	Truck Drivers, Heavy and Tractor-Trailer	7,710	7,920	2.70%	159	Moderate-term on-the-job training	\$38,110	\$24,620
Transportation	53-4011	Locomotive Engineers	ND	ND	ND	15	Moderate-term on-the-job training	ND	ND
Transportation	53-4031	Railroad Conductors and Yardmasters	ND	ND	ND	13	Moderate-term on-the-job training	ND	ND
Energy Efficiency; Governmental and Green Construction; Transportation	53-6051	Transportation Inspectors	130	130	2.38%	3	Work experience in a related occupation	\$55,540	\$27,920
Green Construction; Manufacturing	53-7051	Industrial Truck and Tractor Operators	2,970	2,930	-1.52%	89	Short-term on-the-job training	\$28,730	\$20,780
Green Construction; Manufacturing	53-7062	Laborers and Freight, Stock, and Material Movers	8,190	7,730	-5.68%	264	Short-term on-the-job training	\$25,710	\$17,180
Recycling and Waste Reduction	53-7081	Refuse and Recyclable Material Collectors	340	380	9.59%	13	Short-term on-the-job training	\$27,580	\$19,220

# **Kansas City Missouri Region Green Jobs Survey Results**

## **Introduction**

The Full Employment Council, Inc contracted with the University of Missouri-Kansas City Center for Economic Information (CEI) with funding from the State of Missouri Department of Economic Development Missouri Center for Economic Information (DED/MERIC) to conduct a survey of “green” employment in the five Missouri Counties served by the KC&V and EJAC WIBs. The purpose of this survey was to gather feedback from local green employers about green occupations that are in demand and to identify required skills for those jobs in the Kansas City region. The results of this survey document the progress of the Green Economy on the Missouri side of the Metropolitan Area. It will provide the Full Employment Council and the workforce community with the information necessary to prepare adequate and appropriate training courses for Green Jobs in the area, resulting in a larger supply of qualified workers for Green Jobs and ultimately help guide green job employment and training needed to be qualified for green employment opportunities. The project consists of the application, tabulation and analysis of the results of a survey instrument entitled the Kansas City Region Green Jobs Survey (KCRGJS). The Project utilized contact information from a listing of potentially green identified businesses and green employers in the 5-county region in the 6 green industry sectors identified in the DED/MERIC Missouri Green Jobs Report. The survey was applied to a subset of organizations that have payroll wages, selected by the Full Employment Council, and based on North American Industrial Classification System (NAICS) categories likely to be involved in activities that have green jobs. Information solicited included: education and training required, potential providers of training required, new and emerging green occupations, and green workforce supply. This report documents the results of the Kansas City Region Green Jobs Survey research project. The survey instrument is included as Appendix A of this report. The report of the results of the survey is divided in 4 sections. Section 1 provides basic definitions. Section 2 details survey methods. Section 3 analyses the results of the survey. Section 4 presents conclusions.

## **I. Defining Green Industry Sectors**

The Questionnaire used for the KCRGJS was adapted from a questionnaire applied by the Missouri Economic Research and Information Center, the research arm of the State of Missouri Department of Economic Development. For the purposes of this survey, "green" jobs are defined as "green" occupational employment in “green” organizations. Occupations may be defined as "green" either by the nature and purpose of the job tasks, or the nature and purpose of the employer. Broad categories of organizations identified as "green" are specified below.

### **Green Energy**

Jobs in Green Energy involve the conversion from conventional sources of energy to the technology and development of renewable, clean energy resources. Examples of these activities include:

- Energy production and generation activities

- Power distribution and plant operations
- Turbine power generation
- Installation, repair and electronics for windmills
- Bio-fuel manufacturing

### **Green Building/Construction**

Jobs in Green Building are typically found in construction related activities, household manufacturing, household appliance manufacturing, design and remodeling services, and remediation services. These jobs:

- Use environmentally friendly materials and methods for residential and non-residential infrastructure
- Convert existing property to lessen negative impacts on the environment
- Provide healthy living spaces
- Convert sustainable or renewable resources into energy
- Replenish resources such as water and oxygen

### **Green Manufacturing**

Jobs in Green Manufacturing include those involved in the research, development, and production of materials, parts, and final products that are "green". Examples are wind turbines, energy efficient products, products containing recycled or remanufactured components, etc. Jobs in the green manufacturing sector also involve either practices or the production of products that promote increased efficiency in manufacturing processes including resource efficiency, waste-water efficiency, water recycling, reuse, remanufacturing, and material recovery.

### **Green Public Administration/Government Services**

Jobs in Green Public Administration are typically found in local, state, and federal government or in contracts related to government policy. Examples of these activities include the execution, oversight, and operational management of public policy in the areas of:

- Environmental Conservation
- Green Building
- Resource Management
- Energy

### **Green Salvage/Remediation**

Jobs in Green Salvage/Remediation are found in waste management, environmental engineering, chemistry, salvage, and maintenance occupations. Examples of these activities include the process of renewing resources through:

- Material Extraction
- Environmental Cleanup
- Re-use
- Product Conversion

### **Green Farming/Agriculture**

Green Farming jobs are found in the agriculture and forestry sectors in the following categories:

- Organic/Free Range Food Production
- Forest Preservation
- Renewable Energy Resource Production

## II. Survey Methods

The Missouri Department of Economic Development identified 110 NAICS codes of organizations that potentially would have green jobs. These NAICS Code and corresponding descriptors are Included in Appendix B. The same Appendix also contains a count of the number of organizations from each NAICS code that paid payroll wages in five Missouri Counties of the Kansas City Metropolitan Area (Jackson, Clay, Platte, Cass, and Ray Counties). This database is the universe that was sampled. It contains 3086 entries. The database contains an organization name, address and telephone number, as well as the number of payroll wage earners for the organization (in broad intervals). Several organizations appear multiple times in the database. Examples are cities or counties that have multiple Departments that would potentially provide green jobs and construction companies that are involved in both residential and nonresidential construction. A list of organizations that appear more than once in the database is included in Appendix C of this report.

The survey was initially mailed by FEC staff to each address listed in the database, along with a cover letter and a return envelope addressed to the Full Employment Council. As is to be expected, the response to this initial mailing was quite low. In addition to the factors that contribute to low response for all surveys there were two other factors contributing to the low initial response:

1. Many employers had been contacted before by the state of Missouri and were unwilling to complete a similar survey
2. Inadequate, incorrect or out of date contact information

Some of the returned surveys were incomplete. For those surveys, telephone interviews were conducted to fill in the blanks. For organizations that returned surveys in the mail to FEC, there were no problems in encountered in completing the surveys. A spreadsheet was developed to enter data directly from the completed survey.

The small number of initial responses necessitated direct telephone calls to the organizations in question. Follow-up was conducted by two telephone interviewers. The following procedures were followed to select organizations for contacting.

1. An attempt was made to contact all organizations that were classified as having 50 or more payroll employees by the Missouri Department of Economic Development database.
2. A random sample of organizations with fewer than 50 payroll employees was taken.

Survey results are presented separately these two categories.

### III.A Results for Organizations with 50 or more Payroll Employees

According to the Missouri Department of Economic Development, there were 138 organizations with fifty or more employees that are potential green employers. Of those we were unable to contact 14, due to inadequate contact information. This after exhausting all avenues, including

using the phone book, the Internet, FEC contacts and contacts within the organizations to attempt to make contact.

Of the 124 organizations with more than 50 payroll employees contacted, 22 surveys were successfully applied. The remaining 102 were contacted but did not return surveys.<sup>1</sup> Of the organizations that completed the questionnaire 10 (45%) reported that they are currently producing green goods. The questionnaire allows the organization to specify multiple categories of products and/or services. Table 1 reports the categories of green goods/services reported by organizations currently producing green goods.

<b>Good/Service Type</b>	<b>Frequency</b>
Green Building/Construction	7
Green Energy	3
Green Public Administration/Govt Services	3
Green Manufacturing	1
Green Farming/Agriculture	1

The majority (60%) of successfully survey organizations currently producing green goods/services have plans for expanded production of green goods. All but one of these plans to produce in the same general category of goods/services as their current production. One firm responded that the expansion of green goods will depend upon the demands of its clients.

The survey asks employers to identify the number of employees that are primarily working in green production, and to identify those who work primarily in support of green production. There was a wide range of responses to these questions. With regard to workers who work primarily in green production, the majority (7 of 10) report 5 or fewer. Two organizations reported that virtually 100% of its employees are primarily working in green production. The other organization responded that the number is variable. With regard to workers who support green production, the majority (6 of 10) report 5 or fewer. One of the organizations that reported no workers who work primarily in green production also reported that 75% of its worker are in support of green production.

Table 2 lists the green jobs reported by these organizations, along with a job description, minimum educational requirement and specialized training requirement(s). The evidence here is that most employers consider green jobs to require a college degree. It is clear that employers with more than 50 employees on the Missouri side of the state line of the Kansas City Metropolitan Area do not consider low skilled workers to be involved in green jobs. These employers list LEED certification as by far the most frequently required special training requirement.

Related information is contained in Table 3, which lists the responses of these organizations to a set of questions regarding new green jobs. The question asked is: “Do you plan to create any

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<sup>1</sup> For detailed explanation of contacts with each organization, see notes (Column BM) in data entry spreadsheet.

new jobs with specific green knowledge or skill requirements during the next two years? (Please provide a brief description for each new type of job.) How many employees do you expect to add for each new position?” The responses in Table 3 once again make it clear that these employers associate a high skill level with green jobs. The table also includes comments made by two organizations that do not have specific plans for new green job hires. In general, these results for these larger organizations responding to the survey indicate that most green jobs are viewed by employers as requiring a high level of skills and most of those jobs specifically identified require college degree.

**Table 2: Green Jobs Listed by Organizations with 50 or more Payroll Employees**

<b>Green Job Title</b>	<b>Green Job Description</b>	<b>Minimum Educational Requirement</b>	<b>Special Training Requirements</b>
Lineman/splicer (journeyman)	Constructs, tests, maintains, remover, repairs + operates distribution system.	High school or equal	completion of apprenticeship or min. 2 yr exp.
Electrician	basic lighting installation and electrical wiring of lights	apprentice electrician	n/a
Sustainability coordinator	oversight + coordination of green project information + knowledge	Bach. Of Architecture, LEED AP	Exp. On green building design + construction. Also exp. In other "green" projects/mkt sectors
Sales & Installation	Sell-Hi-Efficiency HVAC Products, promote Clean Ind Air Quality Products		Working knowledge of HVAC principles, IAQ Products, Training to size and deliver to customer
Project Manager	Estimating projects, manage	Associates degree	LEED, OSHA (misc), licensing as required by area
Planner	planners develop comprehensive plans & programs for use of land & physical facilities by local jurisdictions such as towns, cities, metro areas & universities	bachelors in urban planning	leed certification & licensure preferred & should be pursued if they do not already have when hired
Architect	Design, plan & supervise the construction of buildings. They design structures that satisfy their clients needs while conforming to the laws & regulations of the area where structure will be built	bachelor of architecture	LEED certification & licensure preferred & should be pursued if they do not already have when hired
Brownfield Coordinator	coordinate remediation, obtain and administer grants	Bachelors	

**Table 2: Green Jobs Listed by Organizations with 50 or more Payroll Employees (continued)**

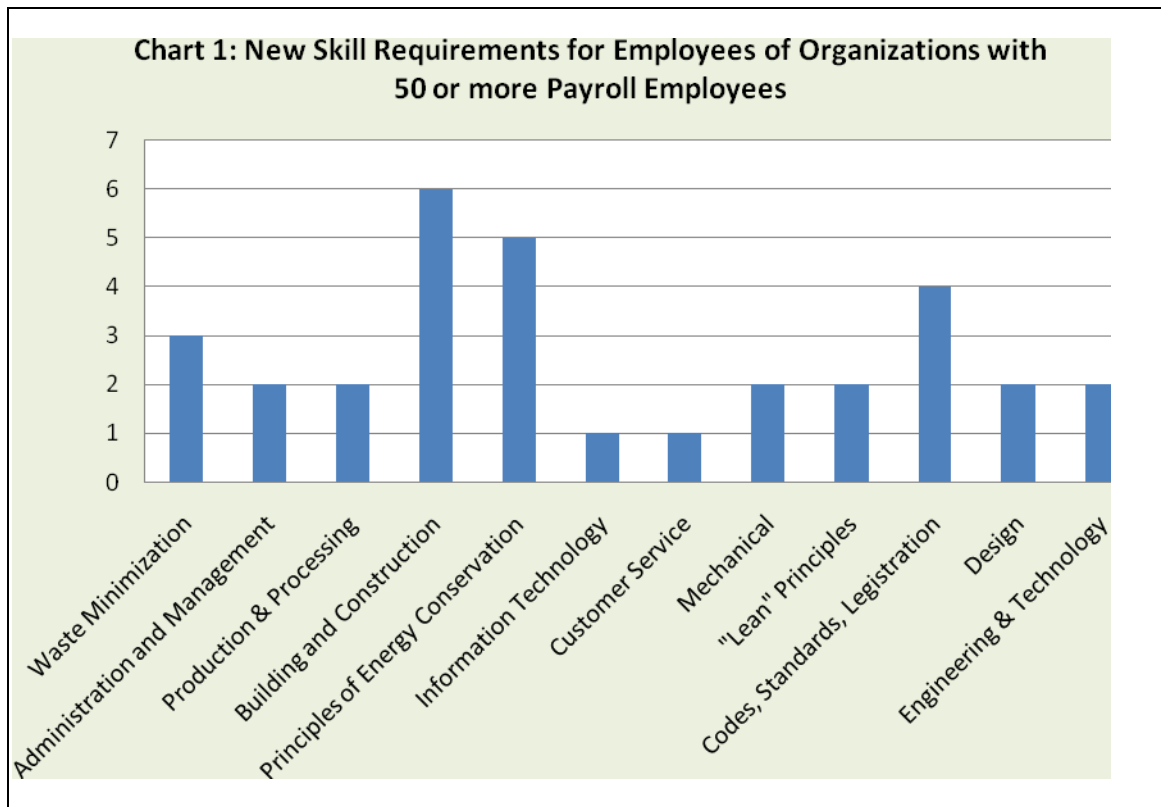
<b>Green Job Title</b>	<b>Green Job Description</b>	<b>Minimum Educational Requirement</b>	<b>Special Training Requirements</b>
Project Manager	LEED "green" project design team	Bach. Of Architecture/int. arch/int. design	"green" building project experience
Service Manager	Estimating projects, manage projects, manage	Associates Degree	LEED, OSHA (misc), licensing as required by area
Interior Designer	Plan, design and furnish interiors of residential, commercial or industrial buildings. Formulate design that is practical, aesthetic and conducive to intended purpose	BA or BFA in Interior Design	LEED certification & licensure preferred & should be pursued if they do not already have when hired
Landscape Architect	Plan & design land areas for projects such as banks, schools & commercial sites. Companies analyze data on conditions such as location drainage & location of structures	Bachelors of landscape architecture	LEED certification & licensure preferred & should be pursued if they do not already have when hired
Sustainable Planning Strategist	develop strategic plans for a variety of organizations related to identifying achieving goals related to sustainability	Bachelors of urban planning, environmental studies or related field	LEED certification & licensure preferred & should be pursued if they do not already have when hired

<b>Table 3: Planned New Green Jobs for Employers with 50 or more Payroll Employees</b>		
<b>Planned New Green Job</b>	<b>Job Description</b>	<b>Number of Jobs</b>
	We currently do not anticipate creating 'new' positions, but rather expanding sustainability knowledge across our existing workforce	
Energy Modeler	provide energy simulation modeling to optimize energy performance	1
Architect	Design, plan & supervise the construction of buildings. They design structures that satisfy their clients needs while conforming to the laws & regulations of the area where structure will be built	5
Sustainable Planning Strategist	develop strategic plans for a variety of organizations related to identifying achieving goals related to sustainability	1
Planner	planners develop comprehensive plans & programs for use of land & physical facilities by local jurisdictions such as towns, cities, metro areas & universities	2
Landscape Architect	Plan & design land areas for projects such as banks, schools & commercial sites. Companies analyze data on conditions such as location drainage & location of structures	2
Interior Designer	Plan, design and furnish interiors of residential, commercial or industrial buildings. Formulate design that is practical, aesthetic and conducive to intended purpose	2
Sustainable Researcher	conduct research related to sustainable design, planning & construction	1
	none specifically anticipated due to current economic and budgeting issues	

With regard to the potential new green jobs, the question was asked: “Do any of the "green-related" jobs identified above require any unique skills, or special licenses/certificates in addition to a standard required license? (For example: LEEDS certification, special licenses for building trades, etc.) Please list any required. If none, please state "none required." Information on reported unique special skill requirements for the new green jobs listed by employers is limited. Results are contained in Table 4

<b>Table 4: Unique Skill Requirements and Certifications for Employees of Organizations with 50 or more Payroll Employees</b>	
<b>Requirement Type</b>	<b>Frequency</b>
None Required	6
LEED Certification	4
Lead Accreditation	1
General HVAC Knowledge	1
Certification for Energy Conservation Inspection	1

Employers were also asked to classify new skill requirements for Employees. This is a more general question and elicited a higher response rate. The responses to this question indicate that employers are concerned with many types of new skill requirements. The question gave interviewees the opportunity to check off all categories that are applicable. Categories with zero checks yield useful information as well. Those categories are: Pollution Reduction and Control, Vehicle Technology/Maintenance, Alternative Energy, Production and Processing, Mathematics, Chemistry, Biology or Other Sciences, and Clerical. Chart 1 shows the Categories that were chosen and the frequency of each category.



The final two questions of the survey refer to current training needs with regard to green knowledge or skills. The results are summarized in Table 5. Organizations are allowed to check multiple answers.

<b>Table 5: Training Types that are Currently Used, Wanted or Considered by Employers with 50 or more Payroll Employees</b>			
<b>Training Type</b>	<b>Current</b>	<b>Wanted</b>	<b>Would Consider</b>
On the Job Training	6		1
Vendor Training	5	1	4
Industry-recognized green certification or training	2		
In House Training Unit	6	1	
In House Classroom Training	2		
Higher Ed non-credit seminar or training short term	1		
Vocational Training	3	2	1
Hire only workers already trained	1		1
HEI short-term accreditation	1		
Apprenticeship	1		
Higher Ed short term accreditation			1
Community Courses (short term)			1

### **III.B Results for Organizations with less than 50 Payroll Employees**

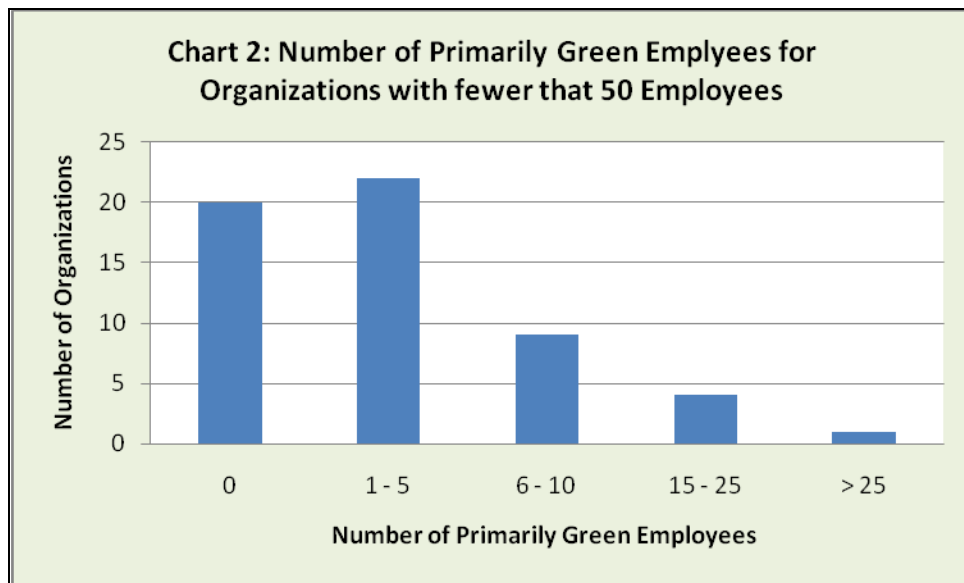
We sampled 88 organizations with fewer than 50 employees in the indicated NAICS categories (see Appendix B). Of these 53.4% (47) reported that they produced green products or services. The green sectors within which these organizations operate is reported in Table 6. Organizations were permitted to check more than one sector. Of the organizations reporting, well over half (64%) report that they operate in the construction sector. This mirrors the result for larger firms. This is not a surprising result. Almost two-thirds of the organizations indicated by the Missouri Department of Economic Development as potential green employers are in the construction sector.

<b>Table 6: Green Goods/Services Currently Produced by Surveyed Organizations With fewer than 50 Payroll Employees</b>	
<b>Good/Service Type</b>	<b>Frequency</b>
Green Building/Construction	30
Green Energy	7
Green Public Administration/Govt Services	8
Green Manufacturing	3
Green Farming/Agriculture	5
Green Salvage/Remediation	8

Of those organizations currently producing green products/services twenty-five (53%) have plans for expanded production of green goods. The sectors in which expansion is expected are reported in Table 7. Once again the dominant sector is building/construction. Two organizations were unsure about expansion, and one adamantly refused to discuss future plan, citing confidentiality.

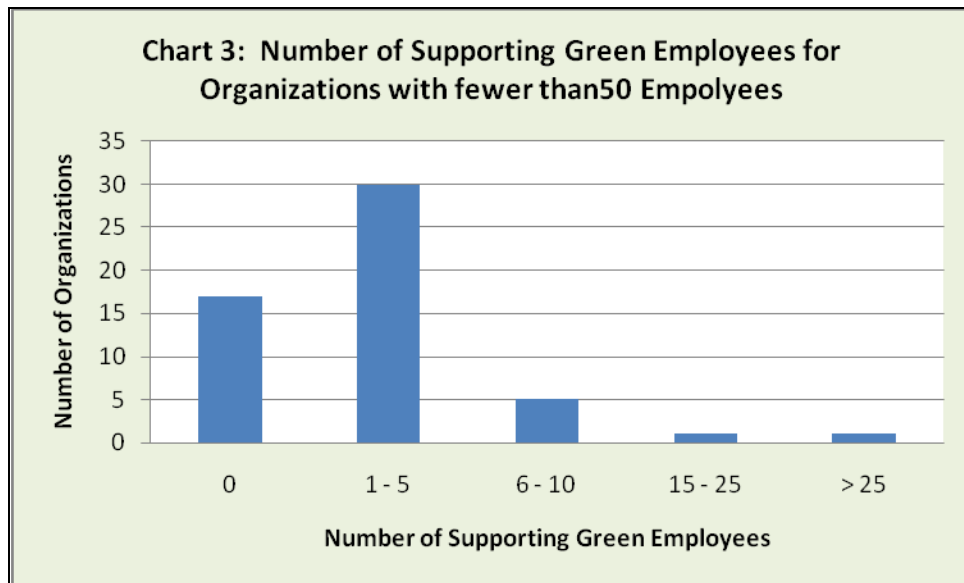
Expansion Sectors	Frequency
Green Building/Construction	20
Green Energy	5
Green Farming/Agriculture	3
Green Public Admin/Gov't Services	2
Green Salvage/Remediation	8
Depends on Situation in Industry	2
Confidential	1

Most of these firms (77% of those producing green products/services) reported using at least 1 employee primarily engaged in green activities. Chart 2 shows that most of these small firms had fewer than five employees primarily engaged in such activities. Not reported on this chart is a Green Building/Construction firm that subcontracts green activities. It reported using 20 subcontractors for primarily green activities.



An even larger percentage (79%) of those organizations that produce green goods/services reported using employees in support of green activities. Chart 3 is similar to Chart 2, except that it relates to supporting employment for green products/services. The same Green Building/Construction company subcontracts to 10 subcontractors in support of green activities.

Table 8 lists the green jobs reported by these organizations, along with a job description, minimum educational requirement and specialized training requirement(s). There is a substantial difference between the minimum educational requirements for smaller organizations. Most of the green jobs for these organizations do not require a college degree. Of the 48 Green Job Titles listed, only 15 require a college degree. This result contrasts with the minimum educational requirements perceived by larger firms (see Table 2). Once again, LEED certification is the most frequently listed special skill requirement. But there is a much wider variety of special skill requirements reported by small organizations than be the large organizations.



Related information is contained in Table 9, which lists the responses of these organizations to a set of questions regarding new green jobs. The question asked is: “Do you plan to create any new jobs with specific green knowledge or skill requirements during the next two years? (Please provide a brief description for each new type of job.) How many employees do you expect to add for each new position?” The responses in Table 9 reinforce the lower required skill levels for green jobs as perceived by smaller organizations. The table also includes comments made by 3 organizations that will have new green jobs only if demand expands for their products. One organization lists 120 subcontractors that it would “hire” to build a green home.

With regard to the potential new green jobs, the question was asked: “Do any of the "green-related" jobs identified above require any unique skills, or special licenses/certificates in addition to a standard required license? (For example: LEEDS certification, special licenses for building trades, etc.) Please list any required. If none, please state "none required." Reported unique special skill requirements for the new green jobs listed by employers is much more detailed and varied than it was for the large firms. Table 10 lists the results. LEED Certification is the only special skill requirement listed by more than two employers.

**Table 8: Green Jobs Listed by Organizations with fewer than 50 Payroll Employees**

<b>Green Job Title</b>	<b>Green Job Description</b>	<b>Min Educ. Requirement</b>	<b>Special Training Requirements</b>
Sales of higher efficiency, 410A units (2)	sales of higher efficiency, 410A units	High school	EPA certified; Propane Certified, preferred-Nati Certified; KCP&L/MGE Certified; associates degree
Service Tech	service existing units per EPA & Propane regs	High school	EPA certified; Propane Certified, preferred-Nati Certified; KCP&L/MGE Certified; 5 yrs exp
Civil Engineer	site design with growing emphasis on water quality control	B.S. Engineering	MO registered Prof. Engr.
Design Manager	designs bldg's to sustainable std's	BA Architecture	LEED AP
Energy Smart roof installer	Install energy smart roof membranes	Co. & Manufacturer training	
Independent Contractors			
Plant Manager	Manage production, building, inventory, shipping and receiving		Mechanical and engineering expertise. Quality control, costing, safety, budgets, communication
Lead safe worker/RRP Certified	understand and follow RRP regs, follow direction, understand terminology	RRP Certified, 2 yrs paint. Exp	
Structural Engineer	Building design using renewable materials	BS Civil Engineering	LEED
Lighting Design & Installation		High school plus cont. ed	continuing ed
Site superintendent	remodel structures into new retail ops		
Project Manager	Mgmt & Design	College Degree	LEED AP
Lead Operator	Control Production	High School	N/A
Project Manager	Estimates/ Manage /Construction & Design	BA 4yr Const Science/Arch	LEED Cert
Grower	Hands on Management	None	Ability to understand daily
Sustainable Design Coordinator	Manage projects, LEED Project Process,	Bachelors Degree	Architectural Design & Sustainability
Architect	Plan, design, construct buildings & product design	Bachelors Architecture	Licensed Architect or working toward license/LEED AP
Installer or Service Technician	Installation of Ground Source	HS & Trade School	EPA Cert, continuing education & training in HVAC
Electrical Installer			
Field workers- drillers/technicians		12 yrs + / Drug & Alcohol Test	
Dist Supt & Operator	Day to day operation of water production	HS graduate	MDNR Certificate
Architect	Designer of buildings	BA Architecture	Minimum 5 year degree
Backflow Tester			
Door & window installer		Certified Pella Contractor	Years of hands on experience
Equipment Operators	Operating loaders & other equipment,	High School/Degree	Job experience
Electrician	Replace old ballasts to more efficient		
Laborer	Care for trees	High School	

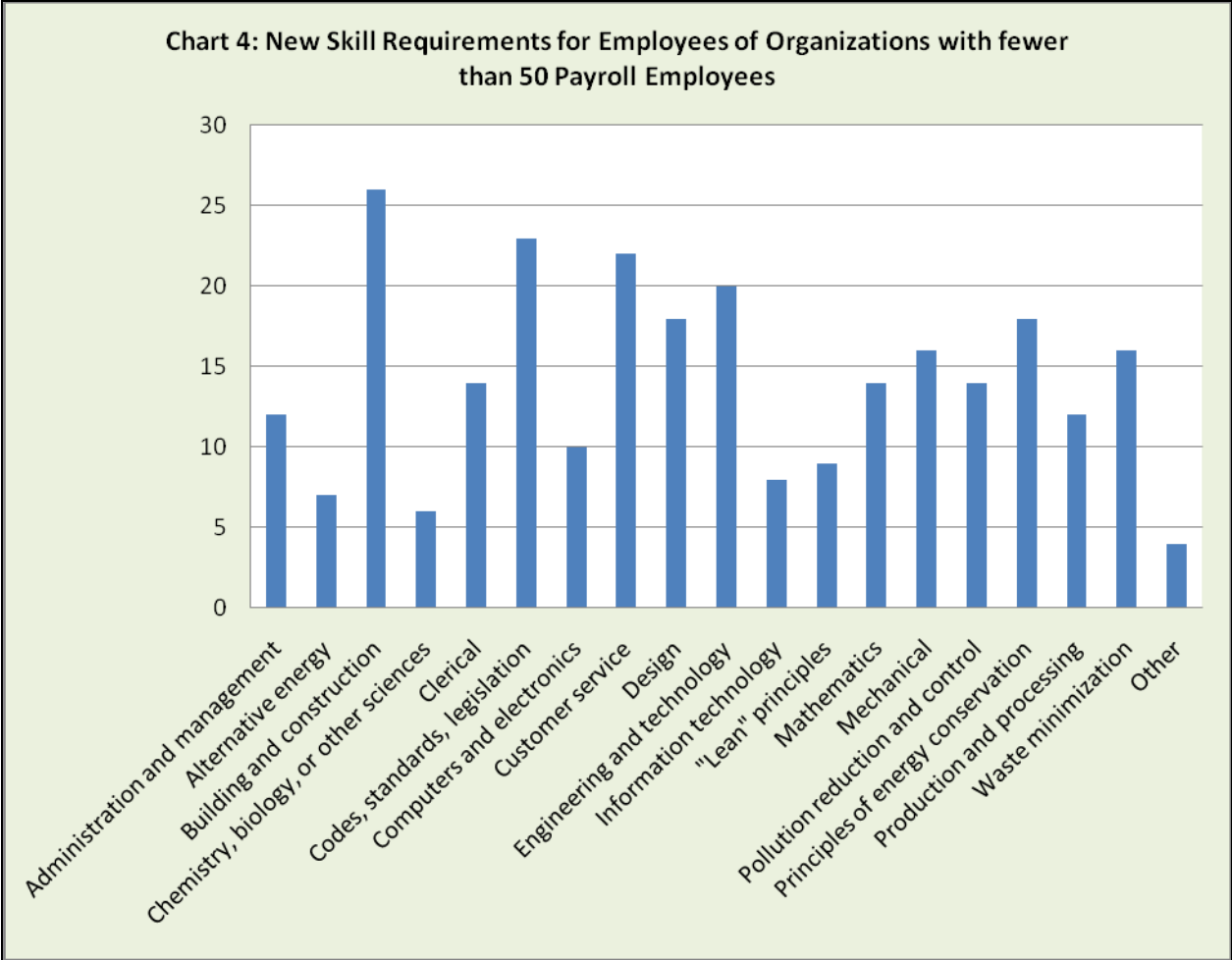
**Table 8: Green Jobs Listed by Organizations with fewer than 50 Payroll Employees**

<b>Green Job Title</b>	<b>Green Job Description</b>	<b>Min Educ. Requirement</b>	<b>Special Training Requirements</b>
Building 125, MCI, KC	Reclaimed asphalt parking lot. Milled and re-used		
Chief Environmental Officer	Manage City's office of environ. Quality; promote climate protection & sustainability in all muni. Operations; serve as primary advisor to Mayor, City Council, & city Mgr re environ. Issues	B.A./B.S. in environmental management or related area	
Environmental Officer	conducts lead/asbestos assessments of buildings; conducts env'l regulatory assessments of city facilities; provides tech. & regulatory assistance to city depts.; promotes climate prot'n measures	B.A/B.S. or equivalent work exp. In environmental management.	knowledge of state/fed env'l laws/regs; ability to secure certifications for lead/asbestos abatement & hazardous waste mgt; knowledge of sustainability & climate Protection measures
Construction Manager	Oversee construction activities		Contractors license & Residential construction
Civil Engineer	Design utilities (water, sewer, gas)	BS in Civil Engineering	LEED Certification
Applicators	Apply environmentally safe water base elastomeric coatings	high schl	factory training
ZinCo Green Roofs Sales & Installation	specify and install ZinCo Gr. Roofs	Co. & Manufacturer Training	GRP designation from Green Roofs for Healthy Cities
Machine Operator/Production worker	responsible for production of goods	GED, High School Diploma	Mechanical aptitude
Site superintendent	Use recycled materials when possible		
Project Superintendent	On Site Supv ensure green requirements	HS & Trade Training	
Utility/Cook Operator		HS	N/A
Propagator	Hands on Management of cutting	None	Pay attn to detail & nimble fingers
Fabricator	Create custom fabrications to install	HS	Training & experience with tools
Project Mgr	Bio Schedule/Coordinate Field Projects	12 Yrs +	Multi -tasking ability
Dist Mgr & Office Mgr	Overall operation of serv/Long term planning	BS or equal	MDNR Cert/MRWA Certificate or equal
Concrete Shingle Installer		Hardie Field Instructions	
Manager	Oversee equip operators /paperwork relating	High School/Degree	Computer skills
Environmental Manager	Oversee the City's environmental compliance program; provide technical & regulatory compliance assistance to City depts11/11/2010 provide env'l training for city staff	B.A./B.S in env'l mgt or related area	knowledge of state/federal env'l laws & regulations; excellent communication skills; ability to supervise technical & administrative staff
HUD Environmental Review Specialist	conducts federally-required environmental reviews for all projects to be funded thru the city w/HUD resources	B.A./B.S. degree	knowledge of env'l regulatory requirements applicable to HUD-funded projects; good communication skills
Construction Supervisor	task that relate to construction of		Ability to lead groups of volunteers in building process
Structural Engineer	Design new structure, design renovated structure	BS in Civil Engineering	LEED Certification

<b>Table 9: Planned New Green Jobs for Employers with fewer than 50 Payroll Employees</b>		
<b>Planned Title</b>	<b>Planned Description</b>	<b>No. of Employees</b>
Depends on economy (3)		
Infill Specialist	Manage the process of setting up, running, maintaining, accounting of production and raw material usage, tear-down and transportation	6
Transplanters	Plant small plants into pots & trays	2-3
Electrical Installer	Install Buildings Automation Systems	2
Driller	Field driller/Tech	1
Architect	Min 5 yrs experience	1
Maintenance Position		1
Painters		
Sorters	sort through trash	10
Equipment Operator	operate loader & forklift	1-2
Office staff	office work	1
Mechanic	keep facility operating	1
Electrician	Solar power	1
Sales Consultant	Sell Green Building Products	1
Construct Homes	Build Green Home	subs 120
Contract Manager	develop RFP's & contracts for Energy Works KC initiative, oversee performance of EWKC contracts	1
Interior Designer	Min 2 yrs experience	1
Office Position		1
Trash Removal		
Installation Manager	Oversee proper installation	1
Continue to remodel green	Recycle & reuse	1
Marketing Coordinator	develops & implements marketing & outreach strategies to promote EnergyWorks KC	1
Environmental Officer	provides assistance re lead/asbestos issues & water conservation elements for EnergyWorks KC	1

<b>Table 10: Unique Skill Requirements and Certifications for Employees of Organizations with fewer than 50 Payroll Employees</b>	
<b>Requirement Type</b>	<b>Frequency</b>
None	16
LEED Certification	7
LEED AP	2
Licensed Architect	2
Lead Base Paint Inspector	1
Commercial Drivers License. Heavy equipment training and certification.	1
HERS Certification	1
State water distribution license	1
RRP EPA Certification	1
Lighting design & installation	1
Good understanding of principles of sustainable	1
Yes 2 Year training & testing for Missouri Drillers license	1
MDR Certificate - Distribution	1
MDR Certificate - Operations	1
MDR Certificate - Management	1
Mechanical pumps, hydraulic	1
Chemistry specific to water	1
Waste Water in the future	1
Back Flow Certification	1
Mechanic- knowledge of electrical & hydraulic syst	1
Office- should have computer skills	1
EPA Lead Safety Certified	1
Certified Chemical Applicator	1
Environmental Officer positions need to obtain certifications for lead & asbestos abatement and hazardous waste management work (HAZWOPER)	1
Contractor's license thru City KC	1
EIT then PE Registration in each state where work	1
Proper Factory Training	1

Employers were also asked to classify new skill requirements for Employees. This is a more general question and elicited an excellent response rate. The responses to this question indicate that smaller employers are concerned with all types of new skill requirements. The question gave interviewees the opportunity to check off all categories that are applicable. Each available category was checked by at least six employers. The Alternative Energy Category asked the interviewee to indicate specifically what type of Alternative Energy for which new skill requirements were necessary – responses included geothermal, PV systems, electricity for pumping and “all type”. Chart 4 shows the categories that were chosen and the frequency of each category.



The final two questions of the survey refer to current training needs with regard to green knowledge or skills. The results are summarized in Table 11. Organizations are allowed to check multiple answers. Once again the smaller firms were much more responsive than larger firms.

<b>Table 11: Training Types that are Currently Used, Wanted or Considered by Employers with fewer than 50 Payroll Employees</b>			
<b>Training Type</b>	<b>Current</b>	<b>Wanted</b>	<b>Consider</b>
Apprenticeship programs	5		2
College degree (AA/AS or above)	8		2
Community college courses	4	1	7
High education institution: non-credit seminar or training (short term)	8	1	6
Higher education institution: degree program	3	1	5
Higher education institution: short-term accreditation	5	2	5
Higher education institution: non-credit seminar or training (short term)	1		
Hire only workers who are already trained	2	4	2
Industry-recognized green certification or training	10	3	4
In-house classroom training	13	3	4
In-house training unit	21	3	5
On-the-job training	32	4	1
Private vendor	15	1	4
Vendor training	16	1	6
Vocational training	6	1	5
Other - "on-line"	1		

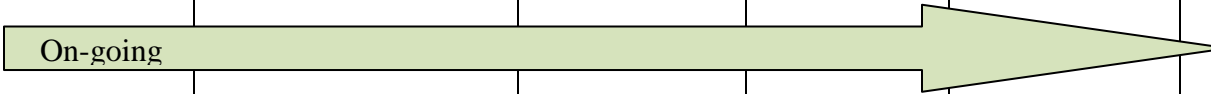
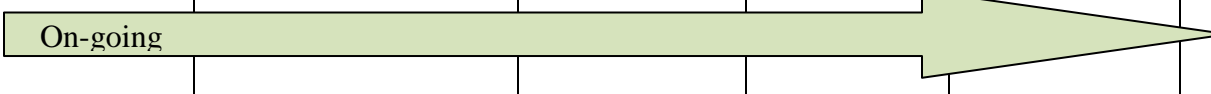

#### **IV. Conclusion**


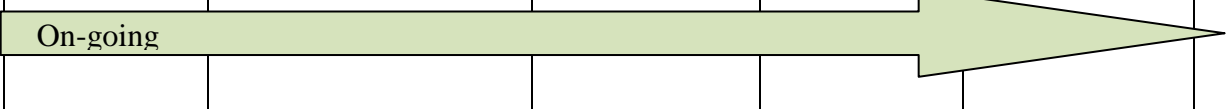




This research attempts to quantify and qualify the training needs for green jobs on the Missouri side of the Kansas City Metropolitan Area. The project was much more successful at gleaning information from small organizations (those with fewer than 50 employees) than from large organizations. The data in the tables and charts of this report show that there is a substantial consciousness of the importance of green production of goods and services among small organizations. The diversity of perceived needs for green skills makes it difficult to cite one particular course of action as clearly preferable to another. The only clear requirement from organizations of all sizes is the demand for LEED certification. To get a feel for the green jobs that are being considered a detailed reading of the job descriptions in Table 2 and 8 is necessary. The results of responses of the smaller organizations indicate that these employers associate green jobs as requiring lower skill levels and of those jobs cited more than half list minimum educational requirements of high school or less. In both large and small organizations the most often cited training method for green training used by employers were on-the-job training, in house training and vendor training.

## Kansas City Region Green Jobs Goals and Action Plan Recommendations:

The Kansas City Region Green Career Advisory Council review of the results of the survey led to renewed commitment to continue to meet to contribute to the knowledge base regarding green economy. The Council agreed that the focus should be to identify specific industry sectors to identify their plans for green job creation and green job skills needs. The Council observed that one issue for employers, the public and the council is awareness. The public has difficulty responding to questions regarding green activities because of the difficulty of defining green. Another observation was the need to move from a marketing phase to expectations phase. The effective growth of green will occur when the community has an expectation that workers will have green skills. The table below describes the Goals and Action Items highlighted by the Kansas City Region Green Career Advisory Group to help provide awareness to the community and help guide the workforce community of what it means to be “Green”.

Kansas City Region Green Jobs Goals and Action Plan:

Goal	Strategy	Recommendations for Action	Possible Partner Agencies	Existing and Potential Resources:	Implementation Timetable
1. Identify green practices applied vs. green job titles with the objective to encourage employers and employees to adopt green techniques	On-going 				
2. Identify public policy that would promote green practices, i.e. in bid specifications, in use of materials, inland use planning, in planning documents, etc.	On-going 				
3. Develop green information portal to list and catalogue of green courses and training	On-going 				

<p>4. Schedule green conversations on an on-going basis with a focus on green techniques, green jobs, green projects, etc.</p>	<p>On-going</p> 			
<p>5. Highlight examples of green courses being taught, employers hiring through green projects, etc</p>	<p>On-going</p> 			
<p>6. Since each industry is different, create and outreach to industry specific sector based groups – utility, construction, manufacturing, professional to identify green job skills needs</p>	<p>On-going</p> 			
<p>7. Adopt model to train around employer demand</p>	<p>On-going</p> 			
<p>8. Work with Mid America Regional Council, which is convening a meeting with green sector to address issues</p>	<p>On-going</p> 			
<p>9. Work with educational institutions ,such as Metropolitan Community College and University of Central Missouri to respond to matrix of courses, collaborate on curriculum development and review of prerequisites, develop baseline of certifications necessary</p>	<p>On-going</p> 			

# ACKNOWLEDGEMENTS

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**Appendix:**

**Kansas City Region Green Jobs Survey**

## Introduction

This is a survey of "green" employment in the Kansas City, Missouri, and Eastern Jackson County Region, conducted by the University of Missouri-Kansas City under contract with the Full Employment Council of Greater Kansas City and the State of Missouri. Your participation in the survey is strictly voluntary, and all information that you provide will be kept strictly confidential. If you have any questions regarding this survey, please contact the Principal Investigator (Dr. Peter Eaton, Director, UMKC Center for Economic Information, 816 235-2832).

Your Employment Site:

Site Name & Address Label Here

has been identified as potentially engaged in economic activity defined as "green." This survey is particularly concerned with the identification of, and the growth potential and labor force training needs for, "green" jobs. Before you begin to complete the survey, please take a few minutes to carefully review the next section, which provides a definition for "green" jobs.

Please confine your answers to describing the activities and plans for your specific geographic location. Do not report on activities or plans for facilities at other geographic locations your organization may operate.

## Definition of "Green" Jobs

For the purposes of this survey, "green" jobs are defined as "green" occupational employment in "green" industrial sectors. Occupations may be defined as "green" either by the nature and purpose of the job tasks, or the nature and purpose of the employer. Industrial sectors identified as "green" are specified below.

### Green Industry Sectors:

#### Green Energy

Jobs in Green Energy involve the conversion from conventional sources of energy to the technology and development of renewable, clean energy resources. Examples of these activities include:

- Energy production and generation activities
- Power distribution and plant operations
- Turbine power generation
- Installation, repair and electronics for windmills
- Bio-fuel manufacturing

#### Green Building/Construction

Jobs in Green Building are typically found in construction related activities, household manufacturing, household appliance manufacturing, design and remodeling services, and remediation services. These jobs

- Use environmentally friendly materials and methods for residential and non-residential infrastructure
- Convert existing property to lessen negative impacts on the environment
- Provide healthy living spaces
- Convert sustainable or renewable resources into energy
- Replenish resources such as water and oxygen

**Definition of "Green" Jobs: Green Industry Sectors (cont'd)**

**Green Manufacturing**

Jobs in Green Manufacturing include those involved in the research, development, and production of materials, parts, and final products that are "green". Examples are wind turbines, energy efficient products, products containing recycled or remanufactured components, etc. Jobs in the green manufacturing sector also involve either practices or the production of products that promote increased efficiency in manufacturing processes including resource efficiency, waste-water efficiency, water recycling, reuse, remanufacturing, and material recovery.

**Green Public Administration/Government Services**

Jobs in Green Public Administration are typically found in local, state, and federal government or in contracts related to government policy. Examples of these activities include the execution, oversight, and operational management of public policy in the areas of:

- Environmental Conservation
- Green Building
- Resource Management
- Energy

**Green Salvage/Remediation**

Jobs in Green Salvage/Remediation are found in waste management, environmental engineering, chemistry, salvage, and maintenance occupations. Examples of these activities include the process of renewing resources through:

- Material Extraction
- Environmental Cleanup
- Re-use
- Product Conversion

**Green Farming/Agriculture**

Green Farming jobs are found in the agriculture and forestry sectors in the following categories:

- Organic/Free Range Food Production
- Forest Preservation
- Renewable Energy Resource Production

**Nature of "Green" Business**

1. In which of the following industrial sectors would you classify your PRIMARY line of business?

Goods-producing Industries

- Manufacturing
- Construction
- Mining
- Agriculture, Forestry, Fishing, etc.

Service-providing industries

- Wholesale & Retail Trade
- Transportation & Warehousing
- Utilities
- Finance, Insurance, Real Estate
- Information Services
- Professional & Business Services
- Educational Services
- Health Care & Social Assistance
- Leisure and Hospitality Services
- Government Services (Federal, State, Local)

Other (please specify):

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Nature of "Green" Business (cont'd)

2. What are your primary products or services? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Does your business currently produce or install green goods, research or develop green products, or supply green services in any of the "green" sectors specified in the definition above?  Yes  No

If yes, which ones? (Please check below all that apply.)

- Green Energy
- Green Building/Construction  Other (please specify):
- Green Manufacturing
- Green Public Admin/Gov't Services \_\_\_\_\_
- Green Salvage/Remediation \_\_\_\_\_
- Green Farming/Agriculture \_\_\_\_\_

4. Do you have any plans to start or expand a "green" business line in the next two years?  Yes  No

If yes, in which sectors? (Please check below all that apply.)

- Green Energy
- Green Building/Construction  Other (please specify):
- Green Manufacturing
- Green Public Admin/Gov't Services \_\_\_\_\_
- Green Salvage/Remediation \_\_\_\_\_
- Green Farming/Agriculture \_\_\_\_\_

If you answered "No" to both questions 3 and 4, you may skip to end of the questionnaire on Page 7.

"Green" Workforce

5. Please give us the following information regarding employment at your site:

Total number of employees _____	Permanent _____
Full-time _____	Seasonal _____
Part-time _____	Temporary _____

6. How many of the total number of employees at your site are PRIMARILY and DIRECTLY engaged in the production of "green-related" products and services?

\_\_\_\_\_

How many provide SUPPORT for your "green-related" activities/primary "green" jobs?

\_\_\_\_\_

"Green" Workforce (cont'd)

"Green" Job Details

7. Please provide the following details for each distinct type of job of which the PRIMARY function is the production of "green-related" products and services. Do not include consultants, outside contractors, vendors, and others who are not considered to be employees. If more pages are required, please make copies of this blank page before starting. If necessary, a copy of the survey may be obtained at: <http://cei.umkc.edu/greenjobssurvey/GreenJobsSurvey.pdf>

Green Job Title:	
Brief Description:	_____ _____ _____
Minimum education required:	_____
Special requirements:	_____ _____ _____
No. workers in this job:	
under \$10/hr	\$10 - \$14.99/hr
\$15 - \$19.99/hr	\$20 - \$24.99/hr
\$25 and over/hr	Total Current
	Est'd in 2 yrs
	Current entry level wage (\$/hr):
	_____

Green Job Title:	
Brief Description:	_____ _____ _____
Minimum education required:	_____
Special requirements:	_____ _____ _____
No. workers in this job:	
under \$10/hr	\$10 - \$14.99/hr
\$15 - \$19.99/hr	\$20 - \$24.99/hr
\$25 and over/hr	Total Current
	Est'd in 2 yrs
	Current entry level wage (\$/hr):
	_____



"Green" Workforce - Special Skills, Knowledge, Training Requirements

9. Do any of the "green-related" jobs identified above require any unique skills, or special licenses/certificates in addition to a standard required license? (For example: LEEDS certification, special licenses for building trades, etc.) Please list any required. If none, please state "none required."

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10. What new skills or knowledge will future employees need in order to perform work activities at your site?

(Check all that apply.)

- Principles of energy conservation
- Waste minimization
- Pollution reduction and control
- Vehicle technology/maintenance
- Information technology
- Alternative energy. Please specify: \_\_\_\_\_
- Codes, standards, legislation
- Engineering and technology
- Mechanical (knowledge of machines and tools, including their design, use, repair, and maintenance.
- Administration and management
- Production and processing (knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.
- "Lean" principles (e.g. inventory flow, waste reduction)
- Mathematics
- Chemistry, biology, or other sciences
- Computers and electronics
- Clerical (including interaction with computers)
- Building and construction
- Customer service
- Design (knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models
- Other (please specify):

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**"Green" Workforce - Training Needs**

11. Do you have any training needs related to green knowledge or skills?  Yes  No

12. What methods are currently used at your site to prepare workers for green-related positons?  
 What other sources of training would you like to have available? What methods would you consider using?

	Currently Using	Would Like	Would Consider
In-house training unit	_____	_____	_____
In-house classroom training	_____	_____	_____
Private vendor	_____	_____	_____
Higher education institution: degree program	_____	_____	_____
Higher education institution: short-term accreditation	_____	_____	_____
High education institution: non-credit seminar or training (short-term)	_____	_____	_____
Community College courses	_____	_____	_____
On-the-job training	_____	_____	_____
Vocational training	_____	_____	_____
Vendor training	_____	_____	_____
Industry-recognized green certification or training	_____	_____	_____
College Degree (AA/AS or above)	_____	_____	_____
Apprenticeship programs	_____	_____	_____
Hire only workers who are already trained	_____	_____	_____
Other (please specify):			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**Conclusion**

Thank you very much for your time and for your thoughtful answers to our questions. Please fold the survey in half and return it to us via U.S. Mail, using the enclosed, postage-paid and self-addressed envelope.

In the event that the persons who read and analyze your responses to this survey have additional questions, or require further clarification regarding the information you have provided here, could we please have your name and contact information?

Name of Respondent: \_\_\_\_\_

Position: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_