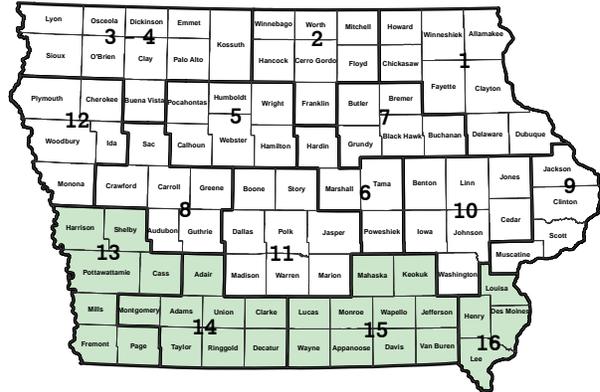


REGIONS 13, 14, 15, 16

WORKFORCE DEVELOPMENT

GREEN JOBS



INCREASED DEMAND OCCUPATIONS

REGION 13

Occupational Title	Employment ^[1]			\$ ^[2]		Career Preparation ^[3]			Top Skills ^[4]									
	2012 Est	2022 Proj	Annual Growth Rate (%)	2015 Mean Wage	2015 Mean Salary	Educ	Work Exp	Job Training	(L-R in order of significance)									
Cement Masons & Concrete Finishers	270	350	3.1	15.47	32,182	< HS	N	M	B6	B2	SO1	B3	SY1					
Heating, AC, & Refrigeration Mechanics & Installers	205	265	2.9	17.55	36,509	PS	N	L	T3	T11	T9	T1	T5					
Carpenters	405	525	2.8	19.59	40,741	HS	N	A	B3	T2	T5	B2	SO1	SY1	B5	B6	T8	R4
Industrial Machinery Mechanics	230	295	2.8	19.49	40,537	HS	N	L	T9	T1	T5	T11	T8					
Electricians	195	240	2.3	27.47	57,146	HS	N	A	T11	T9	B2	B3	T5	T8				
Operating Engineers & Other Construction Equipment Operators	210	250	1.9	21.50	44,722	HS	N	M	T4	T5	B2	B6	B9					
Laborers & Freight, Stock, & Material Movers, Hand	1,945	2,305	1.8	12.66	26,330	< HS	N	S	B2	B3	T5	SO1	B6	B7	B9			
Team Assemblers	1,115	1,270	1.4	12.62	26,258	HS	N	M	SO1	B2	B3	B9	B6	B7				
Customer Service Reps	650	725	1.2	12.14	25,245	HS	N	S	B2	B9	SO5	SO4	B7					
Welders, Cutters, Solderers, & Brazers	405	445	1.0	15.47	32,185	HS	N	M	B3	B2	B6	SY1	T4	T5				
First-Line Supervisors of Mechanics, Installers, & Repairers	285	310	0.9	25.98	54,045	HS	< 5	N	R3	B6	SO1	B3	R4					
First-Line Supervisors of Production & Operating Workers	405	430	0.7	24.79	51,571	PS	< 5	N	B3	R4	B2	B9	SO1	R3	B9			

REGION 14

Laborers & Freight, Stock, & Material Movers, Hand	425	470	1.1	12.79	26,599	< HS	N	S	B2	B3	T5	SO1	B6	B7	B9				
Customer Service Reps	290	315	0.9	14.21	29,555	HS	N	S	B2	B9	SO5	SO4	B7						
Team Assemblers	485	525	0.8	14.59	30,342	HS	N	M	SO1	B2	B3	B9	B6	B7					

REGION 15

Carpenters	340	440	2.8	20.38	42,391	HS	N	A	B3	T2	T5	B2	SO1	SY1	B5	B6	T8	R4	
Industrial Machinery Mechanics	185	230	2.4	19.77	41,122	HS	N	L	T9	T1	T11	T8	B3	T4	T5				
Operating Engineers & Other Construction Equipment Operators	345	405	1.7	18.64	38,762	HS	N	M	T4	T5	B2	B6	B9						
Laborers & Freight, Stock, & Material Movers, Hand	740	835	1.3	12.61	26,232	< HS	N	S	B2	B3	T5	SO1	B6	B7	B9				
Customer Service Reps	360	400	1.1	14.11	29,349	HS	N	S	B2	B9	SO5	SO4	B7						
Welders, Cutters, Solderers, & Brazers	435	460	0.6	16.69	34,715	HS	N	M	B3	B2	B6	SY1	T4	T5					
Team Assemblers	580	605	0.5	16.09	33,461	HS	N	M	SO1	B2	B3	B9	B6	B7					
First-Line Supervisors of Production & Operating Workers	520	540	0.4	23.10	48,044	PS	< 5	N	B3	R4	B2	B9	SO1	R3	B9				
Industrial Truck & Tractor Operators	495	490	-0.1	17.48	36,361	< HS	N	S	T4	T5	SO1	T1	B2	B3	B6				

REGION 16

Carpenters	345	450	3.0	N.A.	N.A.	HS	N	A	B3	T2	T5	B2	SO1	SY1	B5	B6	T8	R4
Heating, AC, & Refrigeration Mechanics & Installers	145	180	2.4	N.A.	N.A.	PS	N	L	T3	T11	T9	T1	T5					
Industrial Machinery Mechanics	300	365	2.2	21.87	45,497	HS	N	L	T9	T1	T5	T11	T8					
Electricians	205	245	1.7	23.64	49,179	HS	N	A	T11	T9	B2	B3	T5	T8				
Laborers & Freight, Stock, & Material Movers, Hand	1,360	1,550	1.4	13.58	28,253	< HS	N	S	B2	B3	T5	SO1	B6	B7	B9			
Welders, Cutters, Solderers, & Brazers	415	455	1.0	17.01	35,378	HS	N	M	B3	B2	B6	SY1	T4	T5				
Customer Service Reps	465	510	0.9	14.41	29,979	HS	N	S	B2	B9	SO5	SO4	B7					
Team Assemblers	1,000	1,055	0.6	13.88	28,863	HS	N	M	SO1	B2	B3	B9	B6	B7				
First-Line Supervisors of Production & Operating Workers	465	480	0.3	24.51	50,987	PS	< 5	N	B3	R4	B2	B9	SO1	R3	B9			
Structural Metal Fabricators & Fitters	295	295	0.0	16.84	35,031	HS	N	M	B2	B3	B9	B6	B7	SO6				
Industrial Truck & Tractor Operators	345	340	-0.1	16.34	33,986	< HS	N	S	T4	T5	SO1	T1	B2	B3	B6			

ENHANCED SKILLS OCCUPATIONS

REGION 13

Occupational Title	Employment ^[1]			\$ ^[2]		Career Preparation ^[3]			Top Skills ^[4]							
	2012 Est	2022 Proj	Annual Growth Rate (%)	2015 Mean Wage	2015 Mean Salary	Educ	Work Exp	Job Training	(L-R in order of significance)							
Heating, AC, & Refrigeration Mechanics & Installers	205	265	2.9	17.55	36,509	PS	N	L	T3	T11	T9	T1	T5			
Construction Laborers	620	775	2.6	15.51	32,266	< HS	N	S	B9	SO1	B2	B3	T4	T5	SO6	
Plumbers, Pipefitters, & Steamfitters	255	320	2.5	24.38	50,707	HS	N	A	SO1	R4	B3	T5	B2	SY1	B6	B9
Heavy & Tractor-Trailer Truck Drivers	1,815	2,125	1.7	19.04	39,604	PS	N	S	T4	T5	B6	B2	B3	T8		
Inspectors, Testers, Sorters, Samplers, & Weighers	295	345	1.7	14.34	29,823	HS	N	M	B3	B2	B9	B7	B6	T5		
General & Operations Managers	735	835	1.4	33.38	69,431	BA	< 5	N	B2	B7	B9	B3	B6			
Maintenance & Repair Workers, General	795	895	1.2	16.15	33,588	HS	N	L	T9	T1	T11	B3	C1	T2	B6	T5
Automotive Service Technicians & Mechanics	505	550	0.9	20.70	43,056	HS	N	L	T1	T9	T11	T2	T8			
Shipping, Receiving, & Traffic Clerks	260	270	0.6	12.96	26,962	HS	N	S	B7	B2	SY1	B6	R4			
Farmers, Ranchers, & Other Agricultural Managers	5,100	4,595	-1.0	33.25	69,159	HS	> 5	N	B3	B9	B2	SY1	B7	R4		

REGION 14

Construction Laborers	165	200	2.1	18.71	38,920	< HS	N	S	B9	SO1	B2	B3	T4	T5	SO6	
Heavy & Tractor-Trailer Truck Drivers	870	975	1.2	23.33	48,530	PS	N	S	T4	T5	B6	B2	B3	T8		
Maintenance & Repair Workers, General	335	370	1.0	18.12	37,699	HS	N	L	T9	T1	T11	B3	C1	T2	B6	T5

REGION 15

General & Operations Managers	580	630	0.8	36.17	75,244	BA	< 5	N	B2	B7	B9	B3	B6			
Farmers, Ranchers, & Other Agricultural Managers	4,945	4,525	-0.8	N.A.	N.A.	HS	> 5	N	B3	B9	B2	SY1	B7	R4		
Construction Laborers	270	330	2.2	14.29	29,728	< HS	N	S	B9	SO1	B2	B3	T4	T5	SO6	
Plumbers, Pipefitters, & Steamfitters	260	315	2.1	N.A.	N.A.	HS	N	A	SO1	R4	B3	T5	B2	SY1	B6	B9
Automotive Service Technicians & Mechanics	280	295	0.5	13.42	27,922	HS	N	L	T1	T9	T11	T2	T8			
Maintenance & Repair Workers, General	770	835	0.8	17.69	36,791	HS	N	L	T9	T1	T11	B3	C1	T2	B6	T5
Machinists	410	450	1.0	16.22	33,744	HS	N	L	T5	T8	T4	T11	B3	B6		
Heavy & Tractor-Trailer Truck Drivers	1,730	1,925	1.1	16.67	34,664	PS	N	S	T4	T5	B6	B2	B3	T8		

REGION 16

Construction Laborers	265	340	2.8	16.31	33,931	< HS	N	S	B9	SO1	B2	B3	T4	T5	SO6	
Plumbers, Pipefitters, & Steamfitters	275	340	2.4	N.A.	N.A.	HS	N	A	SO1	R4	B3	T5	B2	SY1	B6	B9
Sheet Metal Workers	250	305	2.2	N.A.	N.A.	HS	N	A	B3	SY1	R4	B5	B2	SO1	B6	B7
Machinists	215	240	1.2	17.22	35,822	HS	N	L	T5	T8	T4	T11	B3	B6		
Automotive Service Technicians & Mechanics	525	585	1.1	16.06	33,413	HS	N	L	T1	T9	T11	T2	T8			
General & Operations Managers	435	475	0.9	40.32	83,876	BA	< 5	N	B2	B7	B9	B3	B6			
Inspectors, Testers, Sorters, Samplers, & Weighers	435	480	0.9	16.57	34,458	HS	N	M	B3	B2	B9	B7	B6	T5		
Maintenance & Repair Workers, General	725	790	0.9	18.91	39,328	HS	N	L	T9	T1	T11	B3	C1	T2	B6	T5
Mechanical Engineers	200	210	0.5	37.53	78,063	BA	N	N	C1	B3	B2	SY1	B5	B7		
Farmers, Ranchers, & Other Agricultural Managers	3,200	2,855	-1.1	41.45	86,213	HS	> 5	N	B3	B9	B2	SY1	B7	R4		

Legend/Methodology/Selection Criteria:

The basis for **Regional Green Jobs** comes from occupational effects orientative research (or the "greening" of occupations) conducted by O*NET, a primary occupational data source of the Employment and Training Administration, U.S. Department of Labor. As defined by O*NET, the "greening" of occupations "refers to the extent to which green economy activities and technologies increase the demand for existing occupations, shape the work and worker requirements needed for occupational performance, or generate unique work and worker requirements." This report focuses on growing occupations from two O*NET-identified occupational categories describing the effects of activities and technologies on occupational performance: **Green Increased Demand Occupations** (occupations impacted by green economy activities and technologies causing an increase in demand but no significant change to the occupation's tasks) and **Green Enhanced Skills Occupations** (occupations impacted by green economy activities and technologies with significant changes to the work and worker requirements but not necessarily an increase in demand). Residual or undefined occupations were not included in this report which may include "new and emerging" green jobs not representative enough in the general economy to warrant a separate and distinct classification of their own (Examples may include Geothermal Technicians, Recycling Coordinators, Sustainability Specialists, and Wind Turbine Service Technicians.). Additional information on "green occupations" can be viewed on the O*NET OnLine website at <http://online.onetcenter.org/>.

Annual Growth Rate = Ten year growth rate (not shown) divided by ten; **Mean Wage** = Average wage computed by dividing the estimated total wage for a reported occupation by its weighted employment; **N.A.** = Not Available; Compensation provided in wage (hourly) and salary (annual) formats; Missing compensation data may be derived from calculation or prorated of reported wage/salary data if available (i.e., legislator pay based on 4-months service, education and coaching pay based on 12-months service); Occupations with limited or no compensation data (which inhibits either wage or salary calculated derivations) are subsequently omitted from any methodological calculations.

Education/Work Experience/Job Training levels are determined by the U.S. Department of Labor's Bureau of Labor Statistics (BLS). Alternative pathways may exist as well as differing educational, training, or licensing requirements per state. Iowa requirements are used in this publication when available. These include: **Education** (typical education level needed to enter an occupation): DP = Doctoral or Professional degree; MA = Master's degree; BA = Bachelor's degree; AS = Associate's degree; PS = Postsecondary non-degree award; SC = Some college, no degree; HS = High school diploma or equivalent; < HS = Less than high school. **Work Experience** (typical work experience level commonly considered necessary for entry into an occupation, or substitutable for formal types of training): > 5 = More than 5 years; 1 to 5 = 1 to 5 years; < 1 = Less than 1 year; N = None. **Job Training** (typical on-the-job training level needed to attain occupational competency): I = Internship/residency; A = Apprenticeship; L = Long-term on-the-job training; M = Moderate-term on-the-job training; S = Short-term on-the-job training; None = N. **Top Skills** refers to the top five (or more if tied) most important skills for a particular occupation as identified by sampled workers' questionnaire responses conducted by occupational analysts of the U.S. Department of Labor's Occupational Information Network (O*NET). These include: **Basic Skills**: B1 = Active Learning; B2 = Active Listening; B3 = Critical Thinking; B4 = Learning Strategies; B5 = Mathematics; B6 = Monitoring; B7 = Reading Comprehension; B8 = Science; B9 = Speaking; B10 = Writing; **Complex Problem Solving Skills**: C1 = Complex Problem Solving; **Resource Management Skills**: R1 = Management of Financial Resources; R2 = Management of Material Resources; R3 = Management of Personnel Resources; R4 = Time Management; **Social Skills**: SO1 = Coordination; SO2 = Instructing; SO3 = Negotiation; SO4 = Persuasion; SO5 = Service Orientation; SO6 = Social Perceptiveness; **Systems Skills**: SY1 = Judgment and Decision Making; SY2 = Systems Analysis; SY3 = Systems Evaluation; and **Technical Skills**: T1 = Equipment Maintenance; T2 = Equipment Selection; T3 = Installation; T4 = Operation and Control; T5 = Operation Monitoring; T6 = Operations Analysis; T7 = Programming; T8 = Quality Control Analysis; T9 = Repairing; T10 = Technology Design; T11 = Troubleshooting.

Sources:

Education/Training Level: Bureau of Labor Statistics, U.S. Department of Labor; **Employment**: 2012-2022 Occupational Projections (based on 2012 annual employment data), Labor Market and Workforce Information Division, Iowa Workforce Development; **Skills**: Occupational Information Network (O*NET), Employment and Training Administration, U.S. Department of Labor; **Wages**: 2015 Iowa Wage Survey estimates, Labor Market and Workforce Information Division, Iowa Workforce Development. Estimates developed from the 2nd quarter 2014 Occupational Employment Statistics (OES) Wage Survey updated to the second quarter of 2015 using the Employment Cost Index; **Logo**: Developed by Gary Anderson, nontrademarked recycled symbol used to bring awareness to sustainable and/or "green" economic activities. This workforce product was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The product was created by the recipient and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership. This product is copyrighted by the institution that created it. Internal use by an organization and/or personal use by an individual for non-commercial purposes is permissible. All other uses require the prior authorization of the copyright owner. This publication was produced by the Labor Market and Workforce Information Division of Iowa Workforce Development. Revisions and/or corrections made when necessary. Inquiries may be directed to Brent Paulson at 515.281.3439 or Brent.Paulson@iwd.iowa.gov. Visit www.iowalmi.gov to obtain the latest workforce data trends including this document. Published 11/2015.