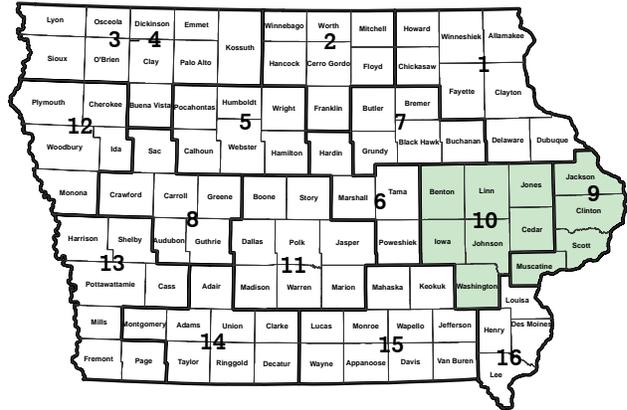


REGIONS 9, 10

WORKFORCE DEVELOPMENT

GREEN JOBS



INCREASED DEMAND OCCUPATIONS  
REGION 9

Occupational Title	Employment <sup>(1)</sup>			\$ <sup>(2)</sup>		Career Preparation <sup>(3)</sup>			Top Skills <sup>(4)</sup>									
	2012 Est	2022 Proj	Annual Growth Rate (%)	2015 Mean Wage	2015 Mean Salary	Educ	Work Exp	Job Training	(L-R in order of significance)									
Carpenters	910	1,195	3.1	20.58	42,816	HS	N	A	B3	T2	T5	B2	SO1	SY1	B5	B6	T8	R4
Dispatchers, Ex Police, Fire, & Ambulance	160	205	2.8	18.65	38,786	HS	N	M	B2	B9	SO1	B7	R4					
Computer-Controlled Machine Tool Operators, Metal & Plastic	295	365	2.4	17.67	36,762	HS	N	M	B6	T5	B3	T8	T4					
Cement Masons & Concrete Finishers	580	715	2.3	16.40	34,118	< HS	N	M	B6	B2	SO1	B3	SY1					
Operating Engineers & Other Construction Equipment Operators	320	390	2.2	20.87	43,418	HS	N	M	T4	T5	B2	B6	B9					
Customer Service Reps	2,295	2,705	1.8	11.87	24,700	HS	N	S	B2	B9	SO5	SO4	B7					
Electricians	775	905	1.7	28.94	60,201	HS	N	A	T11	T9	B2	B3	T5	T8				
Structural Iron & Steel Workers	150	180	1.7	27.50	57,193	HS	N	A	T4	T5	SO1	B3	SY1	B6	B7	B9		
Laborers & Freight, Stock, & Material Movers, Hand	2,400	2,760	1.5	14.22	29,572	< HS	N	S	B2	B3	T5	SO1	B6	B7	B9			
Production, Planning, & Expediting Clerks	280	320	1.4	19.11	39,750	HS	N	M	B7	B2	B3	B9	R4					
Team Assemblers	2,570	2,890	1.2	14.74	30,656	HS	N	M	SO1	B2	B3	B9	B6	B7				
Welders, Cutters, Solderers, & Brazers	1,085	1,200	1.1	18.03	37,497	HS	N	M	B3	B2	B6	SY1	T4	T5				
First-Line Supervisors of Production & Operating Workers	1,195	1,295	0.9	24.39	50,723	PS	< 5	N	B3	R4	B2	B9	SO1	R3	B9			
Industrial Engineers	295	320	0.8	35.32	73,461	BA	N	N	B7	B2	C1	B3	B10					
First-Line Supervisors of Mechanics, Installers, & Repairers	425	460	0.8	28.89	60,086	HS	< 5	N	R3	B6	SO1	B3	R4					
Industrial Production Managers	330	355	0.8	37.60	78,217	BA	> 5	N	SO1	B2	B6	R3	R4					
Chemical Plant & System Operators	430	465	0.7	N.A.	N.A.	HS	N	L	T5	T4	B6	T8	B3					
Industrial Truck & Tractor Operators	820	880	0.7	15.25	31,712	< HS	N	S	T4	T5	SO1	T1	B2	B3	B6			

REGION 10

Carpenters	1,600	2,060	2.9	19.73	41,037	HS	N	A	B3	T2	T5	B2	SO1	SY1	B5	B6	T8	R4
Cement Masons & Concrete Finishers	640	815	2.7	19.68	40,933	< HS	N	M	B6	B2	SO1	B3	SY1					
Industrial Machinery Mechanics	835	1,050	2.6	24.05	50,029	HS	N	L	T9	T1	T5	T11	T8					
Heating, Air Conditioning, & Refrigeration Mechanics & Installers	415	515	2.4	26.63	55,391	PS	N	L	T3	T11	T9	T1	T5					
Computer-Controlled Machine Tool Operators, Metal & Plastic	350	425	2.3	19.12	39,773	HS	N	M	B6	T5	B3	T8	T4					
Electricians	1,345	1,645	2.2	27.02	56,192	HS	N	A	T11	T9	B2	B3	T5	T8				
Operating Engineers & Other Construction Equipment Operators	690	805	1.7	23.23	48,313	HS	N	M	T4	T5	B2	B6	B9					
Dispatchers, Ex Police, Fire, & Ambulance	455	530	1.6	16.36	34,020	HS	N	M	B2	B9	SO1	B7	R4					
Laborers & Freight, Stock, & Material Movers, Hand	2,825	3,210	1.4	13.51	28,106	< HS	N	S	B2	B3	T5	SO1	B6	B7	B9			
Chemists	265	300	1.3	33.90	70,504	BA	N	N	B8	B7	B2	B3	C1	B9				
Millwrights	350	395	1.3	23.93	49,780	HS	N	A	T3	T1	T5	B3	T9	T11				
Team Assemblers	1,905	2,130	1.2	15.23	31,687	HS	N	M	SO1	B2	B3	B9	B6	B7				
Electrical Power-Line Installers & Repairers	400	435	0.9	29.09	60,510	HS	N	L	B2	B6	B3	T11	B1	C1	SY1	T4	T5	T8
Welders, Cutters, Solderers, & Brazers	695	755	0.9	18.50	38,473	HS	N	M	B3	B2	B6	SY1	T4	T5				
First-Line Supervisors of Mechanics, Installers, & Repairers	585	625	0.7	29.97	62,346	HS	< 5	N	R3	B6	SO1	B3	R4					
Software Developers, Systems Software	1,300	1,385	0.7	N.A.	N.A.	BA	N	N	B3	B2	T7	B7	C1					
Industrial Truck & Tractor Operators	1,300	1,380	0.6	15.97	33,214	< HS	N	S	T4	T5	SO1	T1	B2	B3	B6			
Production, Planning, & Expediting Clerks	1,655	1,755	0.6	21.72	45,186	HS	N	M	B7	B2	B3	B9	R4					
Electrical/Electronics Repairers, Commercial & Industrial Equip	410	430	0.5	23.04	47,919	PS	N	L	T9	T8	T5	T11	B3	T1				
Mixing & Blending Machine Setters, Operators, & Tenders	435	455	0.5	20.87	43,409	HS	N	M	T5	T4	B6	B7	B2	T8				
First-Line Supervisors of Production & Operating Workers	1,130	1,185	0.4	28.23	58,719	PS	< 5	N	B3	R4	B2	B9	SO1	R3	B9			
Industrial Engineers	640	645	0.1	35.52	73,875	BA	N	N	B7	B2	C1	B3	B10					
Industrial Production Managers	600	595	-0.1	43.56	90,598	BA	> 5	N	SO1	B2	B6	R3	R4					
Electrical & Electronic Equipment Assemblers	795	740	-0.7	N.A.	N.A.	HS	N	S	B2	B6	B9	B7	T5					

# ENHANCED SKILLS OCCUPATIONS

## REGION 9

Occupational Title	Employment <sup>(1)</sup>			\$ <sup>(2)</sup>		Career Preparation <sup>(3)</sup>			Top Skills <sup>(4)</sup>						
	2012 Est	2022 Proj	Annual Growth Rate (%)	2015 Mean Wage	2015 Mean Salary	Educ	Work Exp	Job Training	Top Skills <sup>(4)</sup>						
									(L-R in order of significance)						
Construction Laborers	800	990	2.4	14.65	30,478	< HS	N	S	B9	SO1	B2	B3	T4	T5	SO6
Heavy & Tractor-Trailer Truck Drivers	3,065	3,645	1.9	20.19	41,999	PS	N	S	T4	T5	B6	B2	B3	T8	
Plumbers, Pipefitters, & Steamfitters	750	890	1.9	23.37	48,601	HS	N	A	SO1	R4	B3	T5	B2	SY1	B6
Sheet Metal Workers	215	255	1.9	N.A.	N.A.	HS	N	A	B3	SY1	R4	B5	B2	SO1	B6
General & Operations Managers	1,650	1,890	1.5	44.19	91,912	BA	< 5	N	B2	B7	B9	B3	B6		
Machinists	520	595	1.4	20.37	42,365	HS	N	L	T5	T8	T4	T11	B3	B6	
Inspectors, Testers, Sorters, Samplers, & Weighers	735	815	1.1	15.68	32,614	HS	N	M	B3	B2	B9	B7	B6	T5	
Automotive Service Technicians & Mechanics	995	1,100	1.1	17.71	36,827	HS	N	L	T1	T9	T11	T2	T8		
Maintenance & Repair Workers, General	2,085	2,305	1.1	17.66	36,729	HS	N	L	T9	T1	T11	B3	C1	T2	B6
Shipping, Receiving, & Traffic Clerks	665	700	0.5	13.31	27,688	HS	N	S	B7	B2	SY1	B6	R4		
Farmers, Ranchers, & Other Agricultural Managers	6,970	6,160	-1.2	N.A.	N.A.	HS	> 5	N	B3	B9	B2	SY1	B7	R4	

## REGION 10

General & Operations Managers	2,585	2,930	1.3	44.04	91,602	BA	< 5	N	B2	B7	B9	B3	B6		
Marketing Managers	335	370	0.9	54.36	113,062	BA	> 5	N	B2	SO4	SO6	B9			
Farmers, Ranchers, & Other Agricultural Managers	11,430	10,160	-1.1	34.31	71,371	HS	> 5	N	B3	B9	B2	SY1	B7	R4	
Construction Managers	395	480	2.2	34.23	71,201	BA	N	M	R4	B2	B3	R3	B9		
Architectural & Engineering Managers	585	585	0.0	N.A.	N.A.	BA	> 5	N	B2	B7	B9	B10	C1	SO1	R3
Training & Development Specialists	440	515	1.7	28.49	59,252	BA	< 5	N	B9	SO2	B4	B7	B2		
Financial Analysts	395	425	0.9	35.90	74,676	BA	N	N	B3	B7	B10	B2	C1		
Personal Financial Advisors	195	260	3.3	42.20	87,766	BA	N	N	B3	B9	B7	SY1	B10		
Aerospace Engineers	500	500	0.0	N.A.	N.A.	BA	N	N	B2	B3	C1	B9	SY1	B7	
Civil Engineers	370	450	2.2	36.49	75,890	BA	N	N	C1	B3	SY1	B5	T6	B7	
Electrical Engineers	885	905	0.2	40.57	84,381	BA	N	N	B3	B7	B2	C1	B10		
Mechanical Engineers	735	720	-0.2	38.96	81,028	BA	N	N	C1	B3	B2	SY1	B5	B7	
Electrical & Electronics Engineering Technicians	530	525	-0.1	28.75	59,805	AS	N	N	C1	B7	R4	B2	B3	B9	
Sales Reps, Wholesale & Mfg, Technical & Scientific Products	365	395	1.0	38.70	80,496	BA	N	M	B9	SO4	B2	SO6	SO3	B7	SO5
Shipping, Receiving, & Traffic Clerks	780	840	0.8	15.88	33,030	HS	N	S	B7	B2	SY1	B6	R4		
Construction Laborers	1,700	2,125	2.5	16.50	34,316	< HS	N	S	B9	SO1	B2	B3	T4	T5	SO6
Plumbers, Pipefitters, & Steamfitters	1,160	1,450	2.5	24.93	51,864	HS	N	A	SO1	R4	B3	T5	B2	SY1	B6
Roofers	305	350	1.5	15.43	32,092	< HS	N	M	SO1	T4	B2	B3	R4		
Sheet Metal Workers	310	375	2.1	N.A.	N.A.	HS	N	A	B3	SY1	R4	B5	B2	SO1	B6
Automotive Service Technicians & Mechanics	1,365	1,525	1.2	17.62	36,649	HS	N	L	T1	T9	T11	T2	T8		
Bus & Truck Mechanics & Diesel Engine Specialists	665	750	1.4	19.16	39,852	HS	N	L	T9	T11	T1	T4	T5		
Heating, Air Conditioning, & Refrigeration Mechanics & Installers	415	515	2.4	26.63	55,391	PS	N	L	T3	T11	T9	T1	T5		
Maintenance & Repair Workers, General	1,825	2,070	1.3	20.96	43,588	HS	N	L	T9	T1	T11	B3	C1	T2	B6
Machinists	385	445	1.6	20.73	43,109	HS	N	L	T5	T8	T4	T11	B3	B6	
Inspectors, Testers, Sorters, Samplers, & Weighers	660	765	1.6	21.91	45,565	HS	N	M	B3	B2	B9	B7	B6	T5	
Heavy & Tractor-Trailer Truck Drivers	11,160	13,980	2.5	21.33	44,366	PS	N	S	T4	T5	B6	B2	B3	T8	

### 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 proration 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: **1 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. **2 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. **3 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. **4 Top Skills** refers to the 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](http://www.iowalmi.gov) to obtain the latest workforce data trends including this document. Published 11/2015.