



region 11 green jobs

2016-2026

september 2019



increased demand occupations

region 11

Occupational Title	Employment ⁽¹⁾			\$ ⁽²⁾		Career Preparation ⁽³⁾			Top Skills ⁽⁴⁾											
	2016 Estimated	2026 Projected	Annual Growth Rate (%)	2019 Mean Wage	2019 Mean Salary	Educ	Work Exp	Job Training	(L-R in order of significance)											
Chemists	105	125	2.4	30.50	63,444	BA	N	N	B8	B3	B7	B2	B5	C1	B10	B9	B1	T8		
Heating, Air Conditioning, & Refrigeration Mechanics & Installers	1,430	1,765	2.3	26.00	54,081	PS	N	LT	T1	T3	T8	T11	T5	T9	B2	B3	T4	B7		
Software Developers, Systems Software	850	1,050	2.3	45.19	94,003	BA	N	N	B7	B2	B3	C1	B9	SY1	B5	SO6	SO1	B6		
Electrical Power-Line Installers & Repairers	265	315	2.1	32.71	68,036	HS	N	LT	B2	B6	B3	T5	T11	C1	SO1	SY1	T4	T8		
Industrial Engineers	615	735	2.0	39.48	82,114	BA	N	N	B7	B2	C1	B3	B10	B9	B6	SY1	B1	SO1		
Cement Masons & Concrete Finishers	925	1,100	1.9	19.67	40,913	< HS	N	M	B6	SO1	T8	B9	R4	B2	C1	B3	SY1	T4		
Helpers--Installation, Maintenance, & Repair Wkrs	160	190	1.9	13.45	27,985	HS	N	S	T5	B2	B3	T1	T9	T11	SO1	SY1	B6	T4		
Structural Iron & Steel Wkrs	270	320	1.9	26.89	55,922	HS	N	A	SO1	T4	T5	B2	B3	B1	C1	SY1	B6	T8		
Chemical Technicians	170	205	1.8	22.44	46,681	AS	N	M	B8	B3	B7	B6	B2	B10	B9	SY1	T8	C1		
Millwrights	150	175	1.7	25.08	52,167	HS	N	A	T5	T1	T3	B3	T9	T11	T4	T8	R4	B2		
Electricians	2,205	2,565	1.6	26.46	55,041	HS	N	A	T11	T9	B2	B3	SY1	T3	B1	C1	T1	SO2		
Architectural & Civil Drafters	405	465	1.5	26.30	54,699	AS	N	N	B2	B3	SY1	B7	B9	SO1	B1	B5	B6	R4		
Operating Engineers & Other Construction Equipment Operators	1,300	1,490	1.5	25.59	53,225	HS	N	M	T4	T5	B6	SO1	T1	T11	B1	B3	T6	T9		
Laborers & Freight, Stock, & Material Movers, Hand	7,855	8,975	1.4	16.07	33,420	< HS	N	S	SO1	B3	T4	B2	T5	B7	B9	B6	SY1	R4		
Carpenters	3,390	3,855	1.4	20.63	42,907	HS	N	A	B2	B6	B9	B1	C1	SO1	B3	SY1	B7	R4		
Computer-Controlled Machine Tool Operators, Metal & Plastic	590	670	1.4	19.86	41,319	HS	N	M	T5	B6	B3	T8	T4	C1	B7	B2	SY1	R4		
Industrial Machinery Mechanics	1,230	1,390	1.3	24.58	51,135	HS	N	LT	T1	T9	T5	T14	T8	B3	T2	B2	C1			
Chemical Equipment Operators & Tenders	225	255	1.3	16.83	35,016	HS	N	M	T4	T5	B6	B2	B3	SY1	B7	C1	B9	B1		
Customer Service Reps	11,675	13,140	1.3	19.11	39,751	HS	N	S	B2	B9	SO5	B7	B3	SO4	B1	B6	SO6	R4		
Electrical/Electronics Repairers, Commercial/Industrial Equipment	125	145	1.2	28.89	60,097	PS	N	LT	T5	T8	T9	T11	B3	T1	B7	B2	C1	SY1		
First-Line Supvs of Mechanics, Installers, & Repairers	1,305	1,455	1.1	32.78	68,176	HS	< 5	N	R3	B6	B3	SO1	B9	R4	B2	SY1	T8	B7		
Welders, Cutters, Solderers, & Brazers	1,250	1,390	1.1	20.45	42,527	HS	N	M	B3	T4	B6	B7	B2	SY1	T5	B9	SO1	B5		
Production, Planning, & Expediting Clerks	815	900	1.1	22.93	47,686	HS	N	M	B2	B7	B9	R4	B3	B6	B10	SO1	SY1	C1		
Bus Drivers, Transit & Intercity	410	455	1.1	18.41	38,290	HS	N	M	T4	T5	B2	B3	SO5	R4	B6	SO6	B9	SY1		
Environmental Scientists & Specialists, Incl Health	275	305	1.1	33.81	70,328	BA	N	N	B2	B3	B7	B8	B9	B10	B1	C1	SO1	B6		
Industrial Truck & Tractor Operators	1,415	1,565	1.1	17.43	36,254	< HS	N	S	T4	T5	SO1	T1	R4	B2	SY1	B6	T11	B3		
Natural Sciences Mgrs	190	210	1.1	67.90	141,224	BA	> 5	N	B10	B7	B9	B2	B3	C1	SY1	B8	R3	B6		
Industrial Production Mgrs	580	640	1.0	46.80	97,341	BA	> 5	N	B3	B6	B9	SO1	R4	B2	SY1	B7	R3	B1		
Commercial & Industrial Designers	100	105	1.0	29.79	61,973	BA	N	N	B2	B3	B7	B9	C1	SY1	T6	B1	B6	SO6		
Occupational Health & Safety Specialists	200	220	1.0	34.07	70,874	BA	N	N	B2	C1	B3	B9	SY1	B7	SO6	SY3	B10	B6		
Stationary Engineers & Boiler Operators	110	120	0.9	25.88	53,830	HS	N	LT	T5	B3	T4	B2	B6	T8	T11	T11	B7	B1		
Insulation Wkrs, Floor, Ceiling, & Wall	115	125	0.9	20.13	41,865	< HS	N	S	B2	B3	T4	B9	SO1	B6	T5	C1	SO6	R4		
First-Line Supvs of Production & Operating Wkrs	1,570	1,695	0.8	27.01	56,173	HS	< 5	N	B2	B9	SO1	B3	R3	B7	R4	SY1	B6	SO6		
Helpers--Carpenters	65	70	0.8	14.44	30,027	< HS	N	S	B2	C1	SO1	B3	B6	SO6	B9	B1	T2	SY1		
Electrical & Electronics Engineering Technicians	205	220	0.7	31.63	65,785	AS	N	N	B7	C1	B3	B2	B6	B9	T11	B1	T5	T9		
Mixing & Blending Machine Setters, Operators, & Tenders	475	505	0.6	19.98	41,551	HS	N	M	T4	T5	B6	B7	T1	T8	B1	B2	B3	B9		
Dispatchers, Ex Police, Fire, & Ambulance	385	405	0.5	23.47	48,819	HS	N	M	B2	B9	SO1	B6	B7	R4	SO5	B10	B3	B1		
Farm & Home Management Advisors	105	110	0.5	N.A.	N.A.	MA	N	N	B2	B9	B7	B1	C1	SO1	SO2	SY1	B4	SO5		
Cutting, Punching, & Press Machine Setters, Operators, & Tenders	565	590	0.4	19.59	40,738	HS	N	M	T5	T4	B6	T8	B2	B3	B9	T11	SY1	B7		
First-Line Supvs of Farming, Fishing, & Forestry Wkrs	140	140	0.0	30.17	62,760	HS	< 5	N	B2	B3	SY1	R3	B6	B9	R4	SO1	SO6	C1		
Agricultural Inspectors	65	65	0.0	N.A.	N.A.	BA	N	M	T8	B2	B6	B7	B3	B9	B1	SY1	T5	C1		
Locomotive Engineers	135	130	0.0	N.A.	N.A.	HS	< 5	M	T4	T5	B2	B3	B6	B9	SY1	B7	B1	C1		
Railroad Conductors & Yardmasters	120	120	0.0	N.A.	N.A.	HS	N	M	SO1	B6	B9	B3	B2	SY1	R4	T5	C1	T4		
Team Assemblers	3,760	3,595	-0.4	16.28	33,854	HS	N	M	SO1	B6	T8	B2	B3	B9	R4	R3	T5	B7		
Buyers & Purchasing Agents, Farm Products	105	100	-0.5	30.16	62,730	BA	N	M	B3	B9	B2	SY1	SO3	SO4	B7	C1	B1	SO1		
Engine & Other Machine Assemblers	235	215	-0.9	N.A.	N.A.	HS	N	M	T5	T8	B7	B2	B3	B6	B9	C1	T1	T4		
Electrical & Electronic Equipment Assemblers	185	160	-1.4	16.49	34,300	HS	N	M	B7	SY1	B6	T5	B2	SO1	B3	T4	T8	B9		
Structural Metal Fabricators & Fitters	220	190	-1.4	17.20	35,770	HS	N	M	B2	B3	B7	B9	SO6	B6	T4	T5	R4	C1		

enhanced skills occupations region 11

Occupational Title	Employment ^[1]			\$ ^[2]		Career Preparation ^[3]			Top Skills ^[4]												
	2016 Estimated	2026 Projected	Annual Growth Rate (%)	2019 Mean Wage	2019 Mean Salary	Educ	Work Exp	Job Training	(L-R in order of significance)												
Personal Financial Advisors	790	1,005	2.7	62.37	129,728	BA	N	LT	B2	B3	SY1	B7	B9	S05	C1	B10	S05	S06	B3	T4	B7
Heating, Air Conditioning, & Refrigeration Mechanics & Installers	1,430	1,765	2.3	26.00	54,081	PS	N	LT	T1	T3	T8	T11	T5	T9	B2	B3	B10	B1	C1	B6	S06
Environmental Science & Protection Technicians, Incl Health	130	155	2.3	25.21	52,438	AS	N	N	B2	B3	B7	B9	B8	B10	C1	SY1	B6	S06	B1	C1	S01
Hazardous Materials Removal Wkrs	195	245	2.3	N.A.	N.A.	HS	N	M	B6	B3	T4	B2	T5	B7	B9	B1	C1	S01	B1	C1	B6
Financial Analysts	1,180	1,435	2.2	43.22	89,908	BA	N	N	B3	B7	B2	B5	B8	B10	SY1	B1	C1	B6	B1	C1	S01
Mechanical Engineers	425	515	2.1	36.76	76,468	BA	N	N	B2	B3	B5	B7	B8	C1	SY1	T6	B1	SY3	B1	C1	S01
Soil & Plant Scientists	1,195	1,435	2.0	44.95	93,505	BA	N	N	B7	B8	B1	C1	B3	B9	B2	SY1	B10	B6	B1	C1	S01
Training & Development Specialists	1,090	1,295	1.9	29.08	60,486	BA	< 5	N	SO2	B4	B2	B9	B6	B7	S06	B3	B10	S01	B1	C1	S01
Plumbers, Pipefitters, & Steamfitters	1,315	1,565	1.9	25.21	52,444	HS	N	A	B3	B2	SY1	C1	T5	T8	T9	B9	T11	B1	B1	C1	S01
Sheet Metal Wkrs	535	630	1.8	24.98	51,948	HS	N	A	B3	SO1	SY1	B5	B6	B7	B9	R4	B2	C1	B1	C1	S01
Electrical Engineers	145	170	1.7	39.85	82,878	BA	N	N	B2	C1	B3	B7	B10	B9	B1	B6	B5	T6	B1	C1	S01
Roofers	360	415	1.7	18.72	38,941	< HS	N	M	SO1	B2	B3	B6	T4	T5	B9	R4	C1	SY1	B1	C1	S01
Construction Laborers	3,190	3,690	1.6	18.51	38,505	< HS	N	S	B2	SO1	T5	B7	S06	B9	C1	B3	T4	B6	B1	C1	S01
Construction Mgrs	1,125	1,300	1.6	41.61	86,550	BA	N	M	B2	B3	B9	C1	SO1	R3	B7	R4	B1	B6	B1	C1	S01
Architectural & Engineering Mgrs	390	450	1.5	61.02	126,923	BA	> 5	N	B7	B3	B2	C1	SO1	SY1	B9	R4	B5	B6	B1	C1	S01
Landscape Architects	165	190	1.5	25.92	53,912	BA	N	I	B2	B7	SO1	B9	C1	B3	SY1	T6	R4	B10	B1	C1	S01
Refuse & Recyclable Material Collectors	330	380	1.5	16.32	33,951	< HS	N	S	T4	SO1	B3	T1	T5	B9	B2	SY1	B7	S06	B1	C1	S01
Civil Engineers	930	1,065	1.5	41.77	86,878	BA	N	N	B3	B7	B2	C1	B5	T6	B9	SY2	R4	B8	B1	C1	S01
Public Relations Specialists	1,120	1,270	1.3	30.60	63,643	BA	N	N	B2	B9	SO1	S06	R4	B10	B3	B7	SO4	C1	B1	C1	S01
Industrial Engineering Technicians	115	130	1.3	24.03	49,990	AS	N	N	B7	B2	B3	C1	B6	B9	SY2	SY3	R4	SY1	B1	C1	S01
General & Operations Mgrs	5,735	6,475	1.3	53.12	110,488	BA	> 5	N	B2	SO1	B6	S06	B9	B3	B7	R4	SO3	B1	B1	C1	S01
Maintenance & Repair Wkrs, General	3,340	3,765	1.3	19.70	40,981	HS	N	M	T1	T9	T11	B3	T2	B6	T4	T5	B1	C1	B1	C1	S01
Heavy & Tractor-Trailer Truck Drivers	8,145	9,135	1.2	22.90	47,642	PS	N	S	T4	T5	R4	B3	B6	B7	B9	T11	B2	C1	B1	C1	S01
Bus & Truck Mechanics & Diesel Engine Specialists	955	1,070	1.2	22.97	47,785	HS	N	LT	T9	T11	T4	T5	B3	T1	T8	T2	SY1	B9	B1	C1	S01
Transportation, Storage, & Distribution Mgrs	375	420	1.2	44.85	93,294	HS	> 5	N	B7	B9	B2	B3	B6	SO1	B10	C1	SY1	R4	B1	C1	S01
Automotive Service Technicians & Mechanics	2,685	2,980	1.1	21.21	44,121	PS	N	S	T9	T1	T5	T11	B3	T4	T8	T2	C1	B2	B1	C1	S01
Construction & Building Inspectors	210	230	1.0	31.67	65,884	HS	> 5	M	B2	B7	B3	B9	C1	SY1	T8	B10	B1	B6	B1	C1	S01
Architects, Ex Landscape & Naval	335	365	0.9	38.54	80,172	BA	N	I	B3	B9	B2	C1	SY1	T6	B7	SO1	B6	B10	B1	C1	S01
Sales Reps, Wholesale & Mfg, Tech & Scientific Products	1,040	1,130	0.9	43.20	89,857	BA	N	M	SO4	B9	B2	SO3	S06	B7	SO5	SO1	B1	C1	B1	C1	S01
Machinists	810	880	0.9	20.43	42,499	HS	N	LT	T5	B3	T4	B2	SO1	B6	B7	C1	T2	SY1	B1	C1	S01
Electrical & Electronics Engineering Technicians	205	220	0.7	31.63	65,785	AS	N	N	B7	C1	B3	B2	B6	B9	T11	B1	T5	T9	B1	C1	S01
Agricultural & Food Science Technicians	555	590	0.6	28.09	58,426	AS	N	M	B7	B2	C1	B3	B10	B5	B6	B1	SO1	SO2	B1	C1	S01
Environmental Engineers	120	130	0.4	37.52	78,032	BA	N	N	B7	B3	B1	B2	C1	SY1	B6	B9	B10	R4	B1	C1	S01
Shipping, Receiving, & Traffic Clerks	1,220	1,260	0.3	18.00	37,441	HS	N	S	B9	B2	B3	B7	SO1	SY1	B6	SO6	C1	R4	B1	C1	S01
Farmers, Ranchers, & Other Agricultural Mgrs	10,970	10,925	0.0	52.81	109,838	HS	> 5	N	B3	SY1	B9	SO1	B6	B2	R4	C1	T5	SO4	B1	C1	S01
Inspectors, Testers, Sorters, Samplers, & Weighers	1,165	1,130	-0.3	19.83	41,239	HS	N	M	T8	B2	B3	B6	B7	B9	SO1	SY1	T5	B10	B1	C1	S01
Wholesale & Retail Buyers, Ex Farm Products	255	245	-0.4	30.16	62,730	BA	N	M	SO3	B2	B3	SO4	B9	B1	SY1	C1	R1	B7	B1	C1	S01
Reporters & Correspondents	255	220	-1.4	16.85	35,043	BA	N	N	B2	B7	B10	B9	B3	SO6	B1	R4	C1	B6	B1	C1	S01

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/>. [1] **Employment** includes: **Estimated** = Estimation of labor force by occupation (rounded); **Projected** = Projection of future labor force by occupation (rounded); and **Annual Growth Rate (%)** = Ten year growth rate (not shown) divided by ten. [2] **Mean (Average) Wage & Salary (\$)** = dividing the estimated total pay for an occupation by its weighted employment. Pay provided in wage (hourly) and salary (annual) formats; Missing pay 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. N.A. = Not Available. Due to occupational code realignment some occupations will have the same wage structure. These include: 13-1020 (13-1021, 13-1022, 13-1023), 15-2090 (15-2091, 15-2099), 21-1018 (21-1011, 21-1014), 29-2010 (29-2011, 29-2012), 39-1010 (39-1011, 39-1012), 39-7010 (39-7011, 39-7012), 47-4090 (47-4091, 47-4099), 51-2028 (51-2022, 51-2023), 51-2098 (51-2092, 51-2099), 53-1048 (53-1021, 53-1031).

[3] **Career Preparation** determined by the U.S. Department of Labor's Bureau of Labor Statistics (BLS). Alternative employment pathways may exist as well as differing educational, training, or licensing requirements per state. Iowa requirements are used in this publication when available. Career Preparation areas/levels 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 = 5 years or more; < 5 = Less than 5 years; N = None; and **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 top ten 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. N.A. = Not Available.

Sources:

Education/Work Experience/Job Training: Bureau of Labor Statistics, U.S. Department of Labor; **Employment:** 2016-2026 Occupational Projections estimates based on 2016 annual industry employment data and 2017 2nd quarter occupational staffing pattern 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:** 2019 Iowa Wage Survey estimates (based on 2018 2nd quarter occupational wage data updated to 2019 2nd quarter using Employment Cost Index), Labor Market and Workforce Information Division, Iowa Workforce Development. This workforce product was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration; **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. 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 and trends including this document. Published 9/2019.