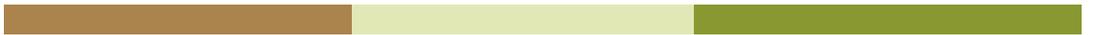




U.S. Department of Labor

Employment and Training Administration



**GROWING
JOBS BY GOING**

GREEN



GREEN FUN FACTS

TRIVIA QUIZ

1.

What percentage of the world's water is available for human use?

Correct answer: **Less than 0.3%**

Only 3% of the world's water is fresh. Of this 3% of fresh water, less than one-third of 1% of this water is available for human use. The remainder is frozen in polar ice caps, glaciers or is unreachable deep down in the earth.

Another way of looking at it is if 100 liters of water were in front of you representing the world's water, only half a tablespoon is available to you as fresh water.



GREEN FUN FACTS

TRIVIA QUIZ

2.

One turbine powered by wind can meet the electrical needs of how many homes?

Correct answer:



**300
HOMES**



GREEN FUN FACTS

TRIVIA QUIZ

3.

How much waste does the US produce on an annual basis per person?

Correct answer:

2,000 lbs. (or 1 ton)



GREEN FUN FACTS

TRIVIA QUIZ

4.

What fraction of aluminum cans get recycled for reuse in the US?

Correct answer:

One-third

GREEN FUN FACTS

TRIVIA QUIZ

5.

The field of recycling plastic products alone produces how many jobs for Americans?

Correct answer:

More than 52,000



GREEN FUN FACTS

TRIVIA QUIZ

6.

**Which state currently leads
The U.S. in wind power
generating capacity?**

Correct answer:

Texas



GREEN FUN FACTS

TRIVIA QUIZ

7.

Which state currently produces more solar powered energy than any other in the U.S.?

Correct answer:

California



GREEN FUN FACTS

TRIVIA QUIZ

8.

Which product consumes the most fresh water during production: a t-shirt, a hamburger, a microchip, or a cup of coffee?

Correct answer: **1 hamburger**

It takes 2400 liters of water to create a hamburger, 2000 liters to make a t-shirt, 140 liters to make a cup of coffee, and 32 liters to make a microchip. The water included to make the hamburger includes water to grow feed, drinking water for the cattle, water for cleaning the cattle, and water for processing the meat

The National Green Agenda

- Investment in renewable energy, energy efficiency and natural resource conservation
- Create job training programs for clean technologies
- Create 5 million jobs over 10 years

A photograph showing a person's hands holding a large white sign with the words "GREEN JOBS" in bold, block letters. The word "GREEN" is in green, and "JOBS" is in dark brown. In the background, the white dome of the U.S. Capitol building is visible against a clear blue sky.

**GREEN
JOBS**

What is a “Green Economy”?

“Economic activity related to reducing the use of fossil fuels, decreasing pollution and greenhouse gas emissions, increasing the efficiency of energy usage, recycling materials, and developing and adopting renewable sources of energy”

- Greening of the World of Work -



What are “Green Jobs”?



[Green For All/green jobs featured in VP Biden's Task Force for Middle Class — Green For All](#)

What are “GREEN JOBS”?

- No Standard Definition (at this time)
- Green Jobs cross many industries and occupational titles



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CIP

green occupations
The green economy is changing tasks, skills, and jobs across the country. Discover important information for over 100 occupations going green.
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O*NET OnLine is created for the U.S. Department of Labor, Employment & Training Administration, U.S. Department of Labor

ETA RECOVERY

O*NET

Green Occupation Codes

- **Solar Photovoltaic Installers**
(47-4099.01)
- **Energy Auditors**
(13-1199.01)
- **Energy Engineers**
(17-2199.03)
- **Regulatory Affairs**
Specialists (47-1011.03)



O*NET

Green Occupation Codes

- **Wind Turbine Service Technicians (49-9099.02)**
- **Power Plant Operators (51-8013.00)**
- **Recycling and Reclamation Workers (51-9199.01)**
- **Recycling Coordinators (53-1021.01)**



O*NET Report

*Greening of the World of Work:
Implications for O*NET-SOC &
New and Emerging Occupations*



SECTOR I: RENEWABLE ENERGY GENERATION

This table includes reported green jobs/occupations identified in publications and internet sources that are related to existing O*NET-SOC occupations classified as “green enhanced skills” occupations

Reported Occupation	O*NET-SOC Code	O*NET-SOC Occupation
Coal Gasification Technicians**	51-8013.00	Power Plant Operators
Coal Miners**	47-5041.00	Continuous Mining Machine Operators
Cogeneration Technicians	51-8013.00	Power Plant Operators
Combustion Technicians	51-8013.00	Power Plant Operators
Electrical Energy Storage/Distribution Technicians	11-3071.02	Storage and Distribution Managers
Ethanol Maintenance Mechanics*	49-9042.00	Maintenance and Repair Workers, General
Fuel Storage Technicians	11-3071.02	Storage and Distribution Managers
Geothermal Electrical Engineers	17-2071.00	Electrical Engineers
Geo-thermal Heat Pump Machinists	51-4041.00	Machinists
Geothermal Operations Engineers	51-8013.00	Power Plant Operators
Geothermal Power Generation Mechanical Engineers	17-2141.00	Mechanical Engineers
Geo-thermal Sheet Metal Workers	47-2211.00	Sheet Metal Workers
Hydro-Electric Operations Maintenance Workers	49-9042.00	Maintenance and Repair Workers, General
Hydro-Electric Plant Electrical Engineers	51-8013.00	Power Plant Operators
Hydro-Electric Plant Mechanical Engineers	17-2141.00	Mechanical Engineers
Hydro-electric Plant Power Generation Engineers	51-8013.00	Power Plant Operators
Hydrogen Plant Operator and Operations Managers	51-8013.00	Power Plant Operators

* denotes occupations that are linked to multiple sectors

**denotes occupations that include traditional, non-renewable sources of energy undergoing significant green technological changes

Green Economy Sectors

- Research, Design, and Consulting Services
- Recycling and Waste Reduction
- Manufacturing
- Green Construction
- Environment Protection
- Transportation
- Energy Efficiency
- Agriculture and Forestry
- Energy Trading
- Energy and Carbon Capture
- Renewable Energy Generation
- Government and Regulatory Administration



The “Greening” of Occupations

- **Green Increased Demand Occupations**
 - 68 O*NET-SOC occupations
- **Green Enhanced Skill Occupations**
 - 57 O*NET-SOC occupations
- **Green New & Emerging Occupations**
 - 90 O*NET-SOC occupations



The “Greening” of Occupations

💡 RENEWABLE ENERGY INDUSTRY

- ***Green Increased Demand:***
power distributors and dispatchers, power systems operators
- ***Green Enhanced Skills:***
power plant operators,
electrical engineers
- ***Green N&E:***
wind turbine
engineer, solar
equipment
installer



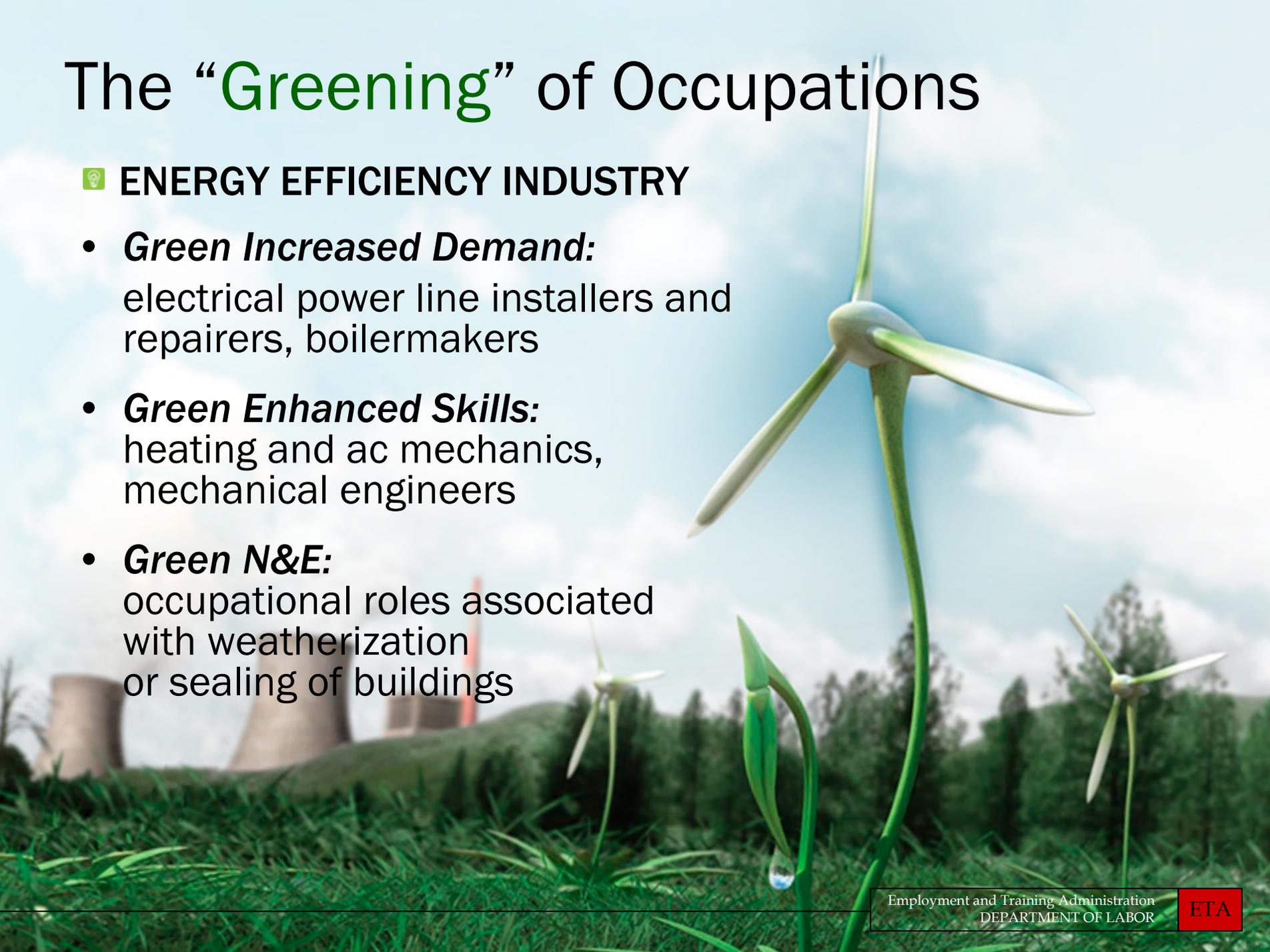
The “Greening” of Occupations

■ TRANSPORTATION & LOGISTICS INDUSTRY

- ***Green Increased Demand:***
railroad conductors,
locomotive engineers
- ***Green Enhanced Skills:***
automotive specialty
technicians, electronics
engineers
- ***Green N&E:***
fuel cell engineers



The “Greening” of Occupations



💡 ENERGY EFFICIENCY INDUSTRY

- ***Green Increased Demand:***
electrical power line installers and repairers, boilermakers
- ***Green Enhanced Skills:***
heating and ac mechanics, mechanical engineers
- ***Green N&E:***
occupational roles associated with weatherization or sealing of buildings

The “Greening” of Occupations

💡 CONSTRUCTION INDUSTRY

- **Green Increased Demand:**
carpenters, electricians, cement masons, concrete finishers, welders, cutters, solders
- **Green Enhanced Skills:**
construction managers, civil engineers, building inspectors
- **Green N&E:**
energy reduction engineer



The “Greening” of Occupations

💡 ENERGY TRADING INDUSTRY

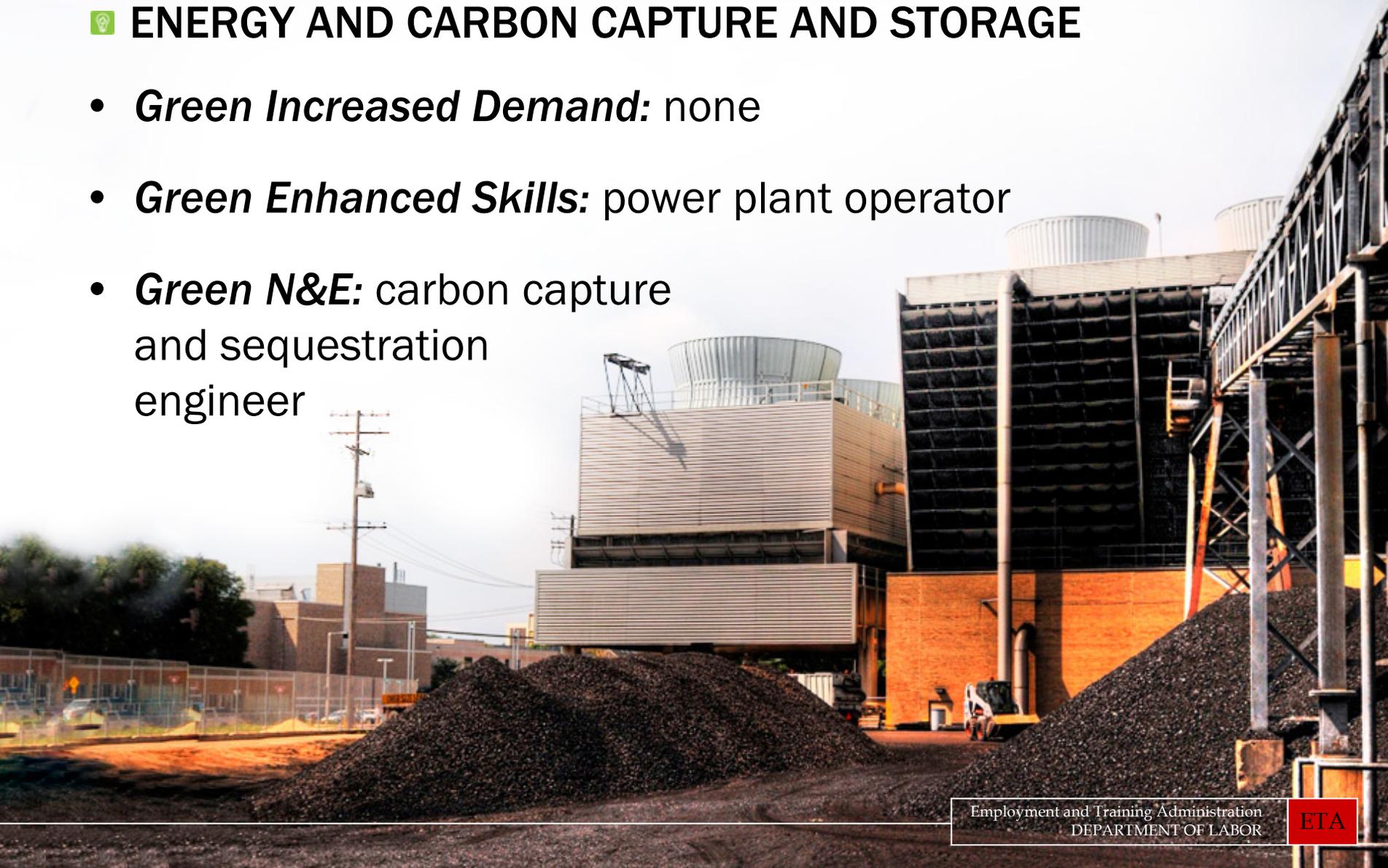
- ***Green Increased Demand:***
financial analysts
- ***Green Enhanced Skills:***
none
- ***Green N&E:***
carbon credit analyst



The “Greening” of Occupations

■ ENERGY AND CARBON CAPTURE AND STORAGE

- ***Green Increased Demand:*** none
- ***Green Enhanced Skills:*** power plant operator
- ***Green N&E:*** carbon capture and sequestration engineer



The “Greening” of Occupations

■ AGRICULTURE AND FORESTRY INDUSTRY

- ***Green Increased Demand:***
agriculture workers and inspectors
- ***Green Enhanced Skills:***
farmers and ranchers, landscape architects, agriculture technicians
- ***Green N&E:***
precision agriculture, biomass farming



The “Greening” of Occupations

ENVIRONMENTAL PROTECTION INDUSTRY

- ***Green Increased Demand:***
environmental scientists, natural sciences managers
- ***Green Enhanced Skills:***
environmental engineers, hazardous materials removal workers, atmospheric and space scientists
- ***Green N&E:***
water resource management, industrial ecologist, climate change analyst



The “Greening” of Occupations

■ RESEARCH, DESIGN, AND CONSULTING INDUSTRY

- ***Green Increased Demand:***

financial analysts, sales reps, geoscientists, engineering managers, marketing managers, public relations specialists

- ***Green Enhanced Skills:***

similar to increased demand occupations

- ***Green N&E:***

green products marketing, green technology research and development

The “Greening” of Occupations

💡 MANUFACTURING INDUSTRY

- ***Green Increased Demand:***
drilling, boring, separating, filtering, clarifying, precipitating and still machine tools setters, operators, and tenders
- ***Green Enhanced Skills:***
industrial and electrical engineering technicians, machinists
- ***Green N&E:***
manufacturing new products in the biochemistry, microsystems, and photonics sectors

The “Greening” of Occupations

💡 RECYCLING AND WASTE INDUSTRY

- ***Green Increased Demand:***
waste management
(garbage collector)
- ***Green N&E:***
recycling and
reclamation coordinator
- ***Green Enhanced Skills:***
plant and systems operations

The “Greening” of Occupations

💡 GOVERNMENT AND REGULATORY INDUSTRY

- **Green Increased Demand:**
agriculture inspectors
- **Green Enhanced Skills:**
soil and water conservationists,
environmental engineers
- **Green N&E:**
emissions permit specialist,
sustainability consultant,
air quality control



Energy Efficiency

- Heating/Air Conditioning Installers
- Carpenters, Carpenter Helpers
- Electricians
- Roofers
- Insulation Workers
- Construction Managers
- Building Inspectors
- Construction Equipment Operators

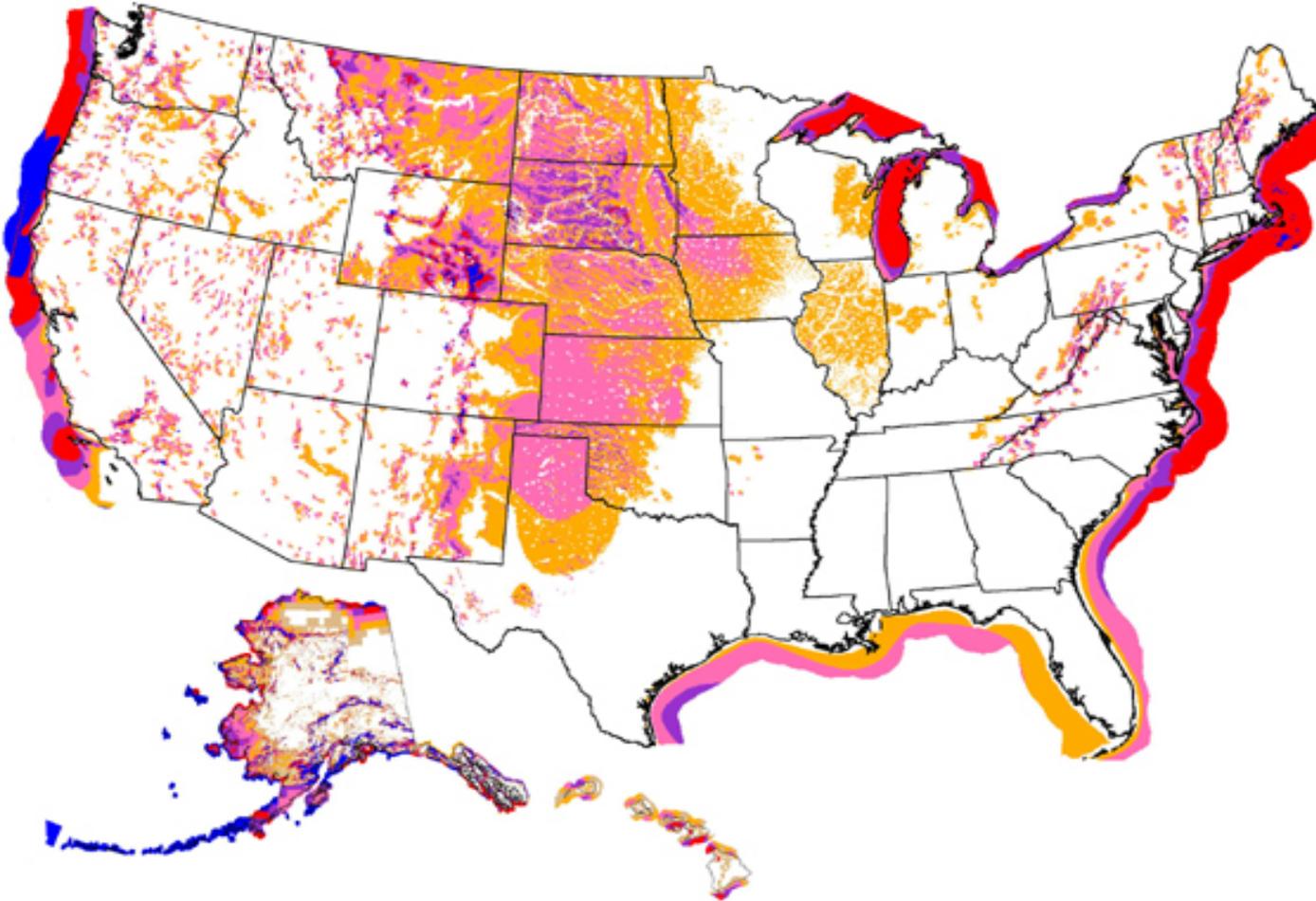


Renewable Energy

- Environmental, Energy Engineers
- Iron and Steel Workers
- Sheet Metal Workers
- Machinists, Millwrights
- Electrical Equipment Assemblers
- Industrial Truck Drivers
- Construction Equipment Operators
- Industrial Production Managers
- Operators, Maintenance Technicians

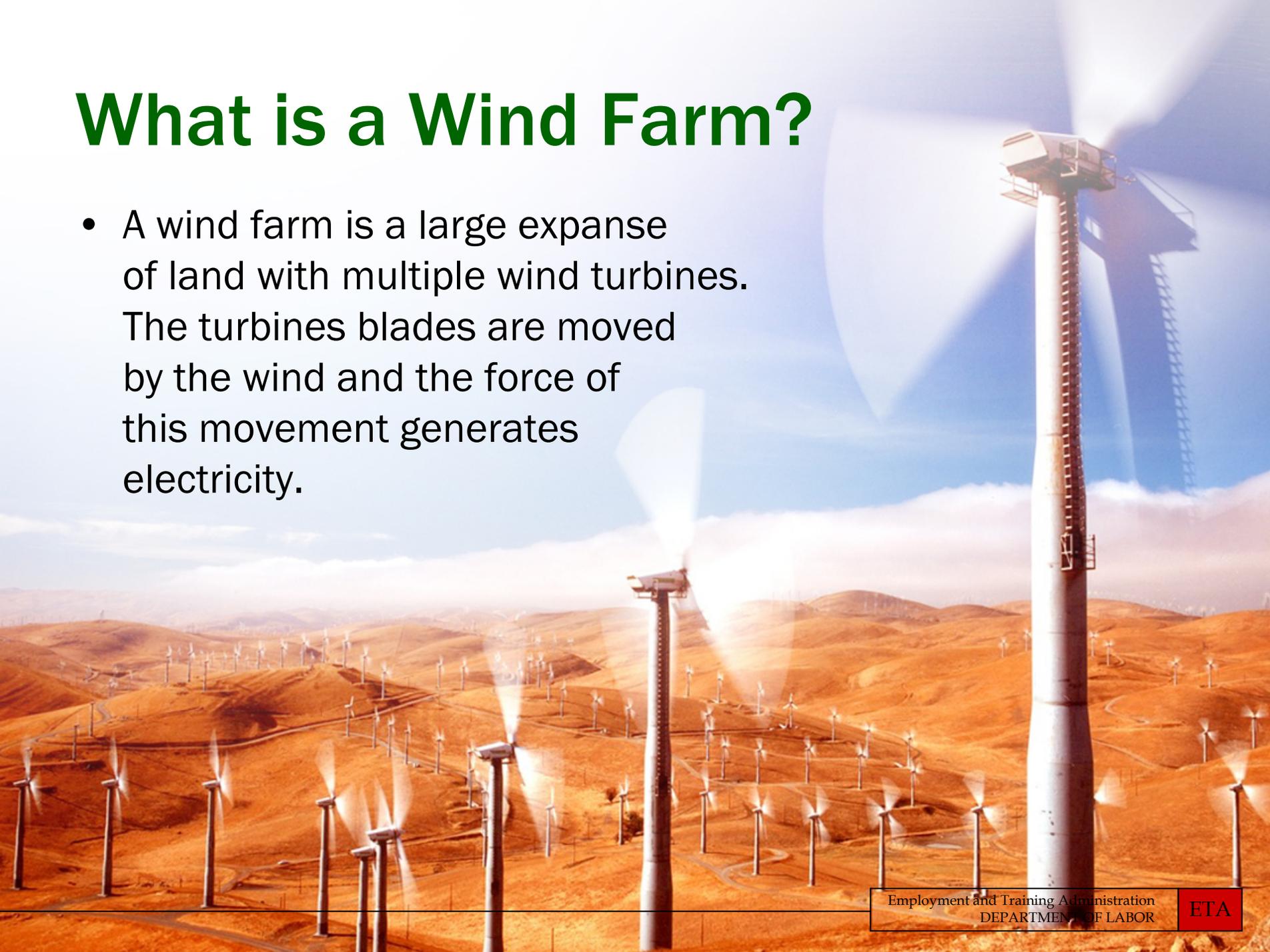


U.S. 50-Meter Wind Map



What is a Wind Farm?

- A wind farm is a large expanse of land with multiple wind turbines. The turbines blades are moved by the wind and the force of this movement generates electricity.



The Power of Wind

1. Texas: 7,116 megawatts
2. Iowa: 2,790 megawatts **
3. California: 2,517 megawatts
4. Minnesota: 1,752 megawatts
5. Washington: 1,375 megawatts

2008 numbers

1 megawatt = 1 million watts

**Iowa is largest producer of wind power per capita

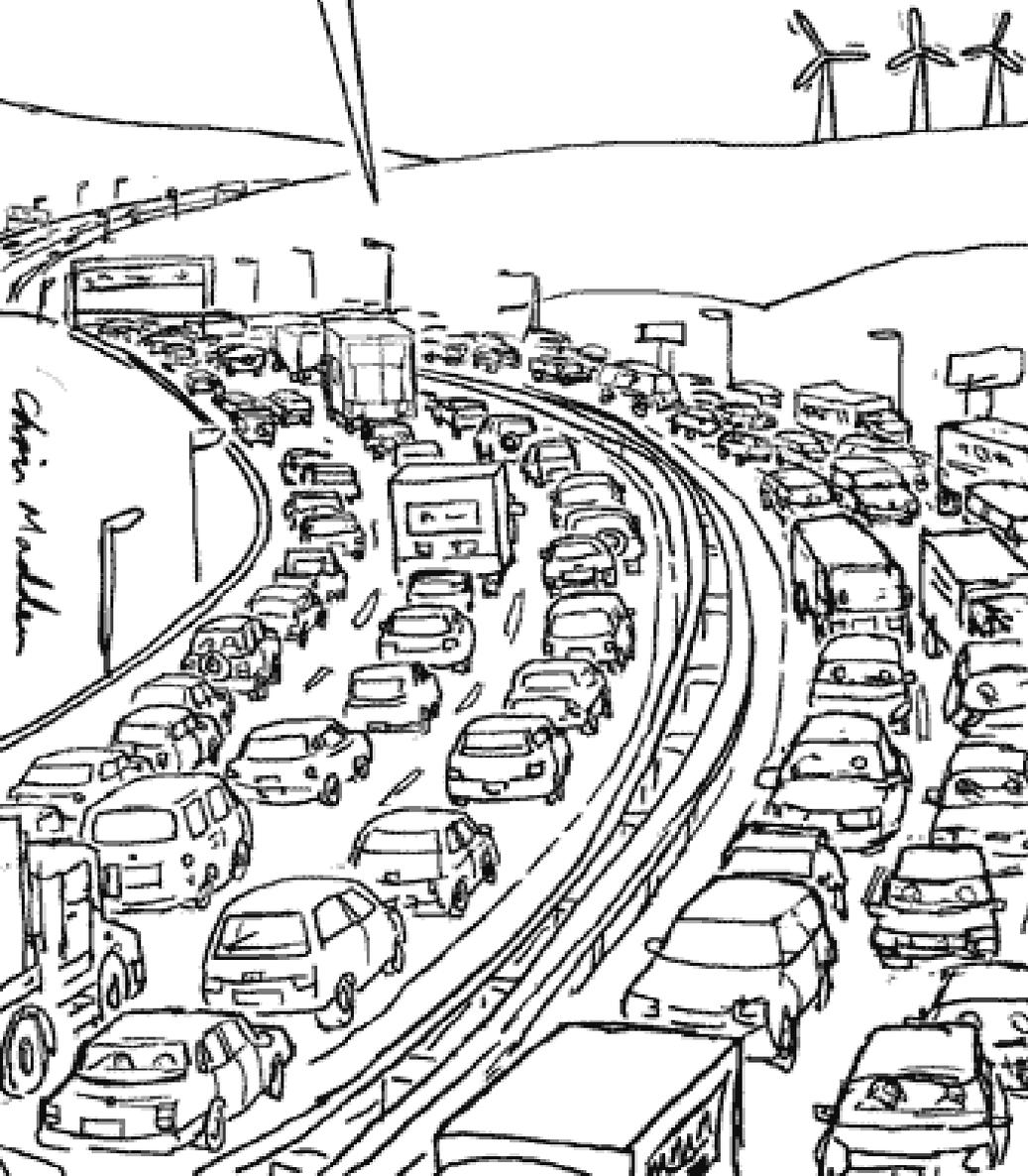


Wind Generating Employment

- Today, about 85,000 people are employed in the wind industry, up from 50,000 a year ago.
 - About 8,000 are construction jobs.
- **Examples of jobs include:**
 - Turbine component manufacturing
 - Construction/installation of wind turbines
 - Wind turbine operations and maintenance
 - Legal and marketing services
- The stimulus bill included funding for a three-year extension of the production tax credit, a new grant program, and a loan guarantee program.



JUST LOOK AT
THOSE EYESORES!



THANK YOU Questions?