

Definition: Green jobs are broadly defined as jobs that involve protecting wildlife or ecosystems, reducing pollution or waste, reducing energy usage or lowering carbon emissions.

Green jobs should provide worker friendly conditions, pay a living wage and offer opportunities for continued skill training and career growth.

Implication to Industry: The basic skills required to perform work in green jobs are the same or very similar as those needed in traditional jobs; they are not dependent on the fuel type. These skills comprise the bottom four levels of the CEWD Generation, Transmission and Distribution Competency Model. With a focus on energy efficiency and renewable energy, the jobs that are available are very similar to the traditional ones. Green skills can be added through additional training, certification, or on the job training. Green jobs will be identified through regional, state or local policy.

CEWD recommends focusing green jobs employment and training efforts on:

- developing career pathways for workers, providing common curriculum and providing industry-recognized credentials.
- Supporting collaboration of the industry, education and workforce at the national and state levels including the State Energy Workforce Consortiums.
- Identifying demand data that links to existing and future industry needs.

Job Content:

Green jobs are traditional jobs with additional green skills. For example, a maintenance technician who works on a turbine in a coal-fired plant can also perform the same tasks on a wind turbine. Engineers who design process flow in a generating station can also design emissions control processes in that same station. Natural gas system design engineers can also design systems using biomass. Heating and air ventilation workers are needed to install more efficient heating, ventilation, and air conditioning (HVAC) systems, sheet metal workers are in demand in the production of wind turbines, and construction workers will build more efficient and environmentally friendly distributed generation and combined head and power units, install the natural gas facilities to power these types of facilities and work on upgrading the nation's electric grid.

Job Training:

While green jobs occupations will be found across all industries and at all levels of education, the largest number of green jobs will be in occupations that require an apprenticeship, professional certificate, or one to two years of postsecondary education. Training should provide common industry fundamentals and job specific skill building that includes transportable "stackable" credentials for green skills and knowledge.

Types of green jobs in Electric and Natural Gas Utilities:

Energy Efficiency

Energy audits, retrofits and weatherization activities that increase energy efficiency and conservation in residential and commercial buildings. Examples include:

- **Energy Auditors and Raters** – Review of existing building, plant and home efficiency and design of solutions

- **Service technicians** – installation and maintenance of HVAC equipment
- **Marketing Engineers** – design of new technologies

Energy Generation

Planning, design, installation, repair and maintenance at all skill levels related to renewable or low emission energy production. The design and installation of emissions control equipment will improve the energy efficiency of existing power plants and reduce the emissions of greenhouse gases. Examples include:

- **Generation Maintenance technicians** – maintenance of emissions control equipment in coal-fired stations; maintenance of turbines in a wind farm
- **Power plant operators / process operators** – similar responsibilities in operating a coal or gas-fired plant and a wind farm
- **Engineers** – planning and design of process flow systems in existing generating plants and the planning and design of emissions control systems.
- **Information technology and computer systems engineers** for design of new technologies in generating plants

Energy Transmission & Distribution:

Planning, design, installation, repair and maintenance at all skill levels related to energy delivery and distribution systems including emissions control equipment or Smart Grid*. Examples include:

- **Lineworkers** –Installation, maintenance and repair of equipment required by new Smart Grid technology – different sensors and other equipment.
- **Pipe layers** –Installation, maintenance and repair of natural gas delivery and distribution systems
- **Substation mechanics** –installation and maintenance of Smart Grid technology at substations and switching stations – SCADA equipment, different sensors
- **Service technicians** –maintenance of electric grids and gas distribution networks
- **Meter technicians** – installation of Smart meters or demand meters (currently part of meter technicians’ responsibilities.)
- **Power Engineers** – planning and design of new transmission and distribution systems include Smart Grid technology.
- **Information technology and computer systems engineers** -design of new technologies energy transmission and distribution systems
- **Construction supervisors** - installation and maintenance of new Smart Grid and Smart Meter technologies

**Smart Grid - The development of a Smart Grid will help utilities coordinate the production of power from large numbers of small power generators thereby offering an opportunity to reduce power consumption during peak hours. The Smart Grid will use digital technology and advanced sensors to improve the quality and reliability of the power flow. Two-way communication devices called SCADA will allow dispatchers to monitor equipment remotely. The installation of Smart Meters will help to monitor electricity consumption in real time providing consumers with information to help them change their usage patterns. The meters will also allow the utilities to control devices in homes or businesses during peak hours.*