

USA GREEN JOBS AND GREEN NEW DEAL MANUFACTURING JOBS

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Abstract

In the USA and other nations there is intense interest in the Green New Deal (GND) and its jobs implications. However, there has not been a comprehensive analysis of the potential jobs impacts of the GND. This paper remedies this deficiency and provides estimates of the jobs likely to be created by the GND, including jobs in the manufacturing sector and specific occupational jobs. We first estimate the current size of the environmental industry in the USA and find that it totals \$640 billion in industry sales and 7.8 million jobs. We estimate that the GND would by 2030 generate more than 18.3 million jobs additional throughout the economy. Of these jobs, 2.25 million would be “green” manufacturing jobs, and these are disaggregated by major industrial components (2 and 3 digit NAICS Code). The GND jobs are concentrated within a number of sectors, including manufacturing and professional, information, and scientific, and technical services. Thus, not only is the relationship between the GND and jobs positive, but the types of jobs created are disproportionately scientific, professional, technical, high-skilled, manufacturing, and high-wage jobs – the very types of jobs highly sought after. The vast majority of the GND jobs are standard jobs for accountants, engineers, computer analysts, clerks, factory workers, truck drivers, etc., and classic environmental jobs (environmental engineer, ecologist, conservation technician, etc.) constitute only a small portion of the jobs created. Thus most of the persons employed in the jobs created may not even realize that they owe their livelihood to the GND.

Keywords: Green New Deal, Green New Deal jobs, environmental jobs, green manufacturing jobs, sustainable jobs, renewable energy jobs.

I. Introduction

The Green New Deal (GND) is a proposed package of USA legislation designed to address climate change and economic inequality. The name is derived from the New Deal, a set of social and economic reforms and public works projects undertaken by President Franklin D. Roosevelt in response to the Great Depression of the 1930s. The GND combines Roosevelt's economic approach with contemporary proposals involving environmental programs, renewable energy, and energy efficiency, and its estimated costs run well into the trillions of dollars. In recent years, various proposals for a "Green New Deal" have arisen both in the USA and internationally.

There is intense interest in the potential jobs impact of the GND – especially the impact on manufacturing jobs. Thus far, the GND jobs impacts have not been estimated and analyzed. The objective of this paper is to provide this important information for the USA.

II. Green Jobs and Jobs Concepts

Management Information Services, Inc. (MISI) estimates that in 2018, USA green jobs (direct plus indirect) totaled about 7.8 million. MISI also estimated the total jobs and the jobs in the manufacturing sector that would be generated by the GND.

In its green jobs studies, MISI uses the employment concept of a full time equivalent (FTE) job in the U.S. An FTE job is defined as 2,080 hours worked in a year's time, and adjusts for part time and seasonal employment and for labor turnover. The FTE concept is the standard used in economic analyses and normalizes job creation among full time, part time, and seasonal employment.

MISI also estimates direct, indirect, and induced jobs:

- Direct jobs are those created directly in the specific activity or process.
- Indirect jobs are those created throughout the required interindustry supply chain.
- Induced jobs are those created in supporting or peripheral activities.
- Total jobs are the sum or all of the jobs created.
- For simplicity, MISI includes induced jobs in the indirect category.

Contrary to general public perception and public policy understanding, since the late 1960s protection of the environment has grown rapidly to become a major sales-generating, profit-making, job-creating industry. The size and the job creating potential of the environmental industry is something that few people are aware of.

Based on extensive research and literature review, MISI considers that environmental jobs are perhaps best understood when viewed in a continuum across a spectrum, with jobs that generate obvious environmental resource degradation or extraction at one end; a range of greener jobs involving clean production measures and technologies to reduce environmental impacts in the center, and the other end of the spectrum where jobs have a positive environmental impact.

Using the spectrum concept, MISI defines environmental industries and green jobs as those which, as a result of environmental pressures and concerns, have produced the development of numerous products, processes, and services, which specifically target the reduction of environmental impact. The jobs include those created both directly and indirectly in the USA.

Nationally in the USA, MISI estimates that the environmental “industry” currently ranks above the top of the Fortune 500, and MISI estimates that in 2019 protecting the environment generated:

- \$640 billion in total industry sales
- 7.8 million jobs

For perspective, compared the revenues generated by other industries, this is:

- About equal to all supermarkets and grocery stores
- Greater than the construction industry
- More than twice the size of the mining industry
- 25% greater than Walmart
- Twice the size of ExxonMobil
- More than 2.5 times the size of Apple
- 2.75 times the size of Amazon
- Four times the size of Ford

Thus, the environmental industry is currently a major factor in the USA economy and job market. The question obviously arises of what impact the GND would have.

III. GND Employment by Industry

MISI estimates that the GND would by 2030 generate about 18.3 million jobs (direct plus indirect). Of these 18.3 million jobs, about 2.25 million would be “green” manufacturing jobs. A disaggregation of some of the major industrial components (by 2 and 3 digit NAICS Code) of these jobs is presented in Table 1.

Table 1
Jobs by Select Industry Resulting From the GDN in 2030

Industry Title	Jobs (thousands)
Select Manufacturing Industries	
Electrical equipment, appliances, and components	230
Miscellaneous manufacturing	225
Fabricated metal products	200
Nonmetallic mineral products	195
Motor vehicles, bodies and trailers, and parts	115
Primary metals	95
Chemical products	90
Other transportation equipment	80
Computer and electronic products	50
Machinery	45
Plastics and rubber products	40
Wood products	35
Paper products	30
Textile mills and textile product mills	20
Other Select Industries	
Construction	960
Miscellaneous professional, scientific and technical services	350
Waste management and remediation services	230
Utilities	145
Information and data processing services	105
Computer systems design and related services	100
Total Jobs (including industries not listed separately)	18,340

Source: Management Information Services, Inc.

Examining the jobs resulting by industry from the GND indicates that the impact is well distributed across the U.S. economy (Table 1). The industries involved are not surprising since it is easy to understand the parts they will play in the evolving transformation to a new green energy economy and subsequent economic growth. Some of the industries showing the largest jobs impacts are listed in order with the part they will play:

- Construction - the industry receives an overwhelming direct stimulus from almost all the growing green technologies in addition to a positive indirect impact from the improvement in overall economic growth due to energy savings.
- Professional, scientific and technical services – the industry and its employees play a large part in driving the new green energy and energy efficiency technologies.
- Waste management and remediation services – the industry will play a large part in energy efficiency and in supplying biogas.
- Electrical equipment, appliances, and components – the industry will be relied upon to supply not only new electrical components and testing equipment to all the

alternative electric energy technologies but will also contribute to efficiencies in the smart grid from generation to final consumer use.

- Miscellaneous manufacturing – general manufacturing growth will require the industry's output and the industry is indirectly stimulated by overall growth in the economy.
- Fabricated metal products – the industry will be the primary supplier of parts, products and systems for the photovoltaic, wind, and concentrating solar technologies.
- Nonmetallic mineral products – the industry supplies two major products that will be in high demand in both the solar-related and energy efficiency technologies: glass and fiberglass.
- Utilities – the industry is the center of attention as electric and gas energy supply technologies transition to green technologies and the industry will also be stimulated by various customer energy efficiency initiatives.
- Motor vehicles, bodies and trailers, and parts – the industry will be positively affected by transportation green energy improvements that will stimulate research and development and vehicle sales as the country's rolling stock turns over.
- Computer systems design and related services – the industry will be stimulated by the smart grid and other energy efficiency applications.
- Primary metals – a direct supplier of metal for finished products, this industry will be indirectly impacted by increased demand from other manufacturing industries.
- Chemical products – the industry will be stimulated in particular by the increase in the growth of biofuels and biomass.
- Other transportation equipment - transportation energy efficiency improvements will impact this industry.

MISI also found that the GND jobs are concentrated within a number of sectors, including manufacturing and professional, information, and scientific, and technical services, and this is significant because the U.S. and numerous states are seeking to modernize and expand their high-tech industrial and manufacturing bases. Thus, not only is the relationship between environmental protection and jobs positive, but the types of jobs created are disproportionately scientific, professional, technical, high-skilled, manufacturing, and high-wage jobs – the very types of jobs that all states are attempting to retrain and attract. These types of jobs are a prerequisite for a prosperous, middle class society able to support state and local governments with tax revenues – which states already recognize. Of particular note, MISI estimates that the GND will provide a greater than proportionate assist to the manufacturing sector.

IV. Employment by Occupation

The vast majority of the millions of jobs created by the GND at the state and national levels are standard jobs for accountants, engineers, computer analysts, clerks, factory workers, truck drivers, etc., and classic environmental jobs (environmental engineer, ecologist, conservation technician, etc.) constitute only a small portion of the

jobs created. In fact, most of the persons employed in the jobs created may not even realize that they owe their livelihood to the GND.

This finding is important for, even recognizing that the GND is beneficial for the economy and is creating millions of jobs, the first impression is likely that these are jobs for environment specialists, ecologists, environmental regulators, etc. MISI determined that jobs for all occupations and skills are generated, and this should be of interest to organized labor, trade and professional associations, and policy-makers.¹

For example, MISI estimates that the GND will create:

- More jobs for sheet metal workers than for geoscientists
- More jobs for electricians than for chemists
- More jobs for computer software engineers than for hazardous material removal workers
- More jobs for machinists than for forest and conservation technicians
- More jobs for welders than for biochemists
- More jobs for plumbers than for health and safety engineers
- More jobs for security guards than for ecologists
- More jobs for janitors than for natural science managers
- More jobs for financial managers than for conservation scientists
- More jobs for executive secretaries than for environmental scientists
- More jobs for truck drivers than for hazardous material removal workers
- More jobs for human resource manager than for environmental scientists and specialists
- More jobs for stock clerks than for chemists
- More jobs for management analysts than for foresters

Sources

MISI estimated the total jobs and the jobs in the manufacturing sector that would be generated by the GND on the basis of research summarized in the following sources:

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¹Additional job data available upon request.

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