

Alternative and Renewable Energy Educational Programs and Work Opportunities

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Introduction

Renewable energy and energy efficiency technologies (also known as sustainability) are driving significant economic growth in the United States.

Introduction

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8.5 million new jobs

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\$970 billion in revenue
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more than \$150 billion in increased
federal, state and local government tax
revenues.

Introduction

And, it provided important stimulus to the beleaguered U.S. manufacturing industry, displaced imported oil, and helped reduce the U.S. trade deficit

(from Renewable Energy and Energy Efficiency: Economic Drivers for the 21st Century.)

Definitions

Alternative Energy – energy sources that are deemed to be alternatives to more traditional (and often non-renewable) energy sources.

Definitions

Renewable Energy – energy sources that do not deplete natural energy sources of the earth and our environment. New technologies are being developed rapidly.

Definitions

Renewable Energy Categories are :

Solar (both photovoltaic and thermal)

Wind

Geothermal

Biomass

Hydroelectric

Definitions

Non-Renewable Energy – energy sources that are known to either deplete the natural resources of our earth and environment,

Definitions

or add waste products to our environment
that are considered to be harmful to our
environment

Definitions

Examples are:

Fossil fuel

Coal

Hydroelectric

Nuclear

Definitions

Energy Efficiency (also referred to as Sustainability) – generally refers to our ability to do more with less, in terms of energy efficiency.

Definitions

This includes an increased awareness of our “energy footprint” and how much energy we use in our daily lives.

Definitions

Methods of saving energy in our lives, including more efficient lighting, the use of Energy Star appliances and minimizing our use of “phantom” or “vampire” loads are examples of energy efficiency.

Composition of “Green Collar” Industries

List of Handouts

- View of Renewable Energy in the U.S., 2006
- The Renewable Energy Industry in the U.S., 2006
- Renewable Energy Jobs Generated in the U.S. in 2006 by Selected Occupations
- U.S. Renewable Energy and Energy Efficiency Industries in 2030
- Renewable Energy and Energy Efficiency Occupations: Wages, Educational Requirements, and Growth Forecasts, Selected Occupations
- Job Growth from 2006-2030 in Selected

Educational Programs in Renewable Energy

Architecture & Construction:

- U.S. Green Building Council: Leadership in Energy and Environmental Design (LEED)
- Contains LEED Accredited Professional Certification and LEED Certified Buildings
- California Title 24 Energy Efficiency Standards (for both Residential and non-Residential)
- California Association of Building Energy Consultants
- Certification for Certified Energy Analyst (currently being developed)

Educational Programs in Renewable Energy

Energy Audits

- California Energy Efficiency Standards and Training
- Home Efficiency Rating System (HERS)
- BuildItGreen
- Certified Green Building Professional Training
- Green Points Home Rating Certification
- Utility Training (short courses)

Educational Programs in Renewable Energy

**Energy Management (AS Degree, Lane
Community College, Eugene Oregon)**

- HVAC Systems
- Lighting Systems
- Energy Management Topics

Educational Programs in Renewable Energy

Transportation Systems (College of the Desert)

- Hydrogen Fuel Cell Buses
- Electric Vehicles

Educational Programs in Renewable Energy

Solar Photovoltaics (Diablo Valley College)

- **NABCEP Entry Level Certification
available**

Educational Programs in Renewable Energy

Wind Energy Systems (Iowa Lakes College)

- **Wind Energy and Turbine Technology
(AAS Degree)**

Educational Programs in Renewable Energy

Bio-Energy (Iowa Lakes College)

- Ethanol Production (AAS Degree)

Educational Programs in Renewable Energy

Solar Thermal

- Solar Water Heating Installation
- NABCEP Exam Preparation for Solar Thermal Certification