

# Tackling Climate Change in the US: Potential Carbon Emissions Reductions from Energy Efficiency and Renewable Energy by 2030

Edited by Charles F. Kutscher, Ph.D., P.E.

American Solar Energy Society (ASES)

January 2007

Estimates by the IPCC in 2007 are that industrialized nations must reduce emissions about 60-80 percent below today's values by mid-century. New information indicates that climate is changing even faster than expected. According to "Tackling Climate Change in the US," energy efficiency (EE) can contribute approximately 57 percent of the carbon reduction to meet these levels, and renewable energy (RE) can contribute about 43 percent of the reduction. Energy efficiency measures can allow US carbon emissions to remain about level through 2030, whereas the renewable supply technologies can provide large reductions in carbon emissions below current values.

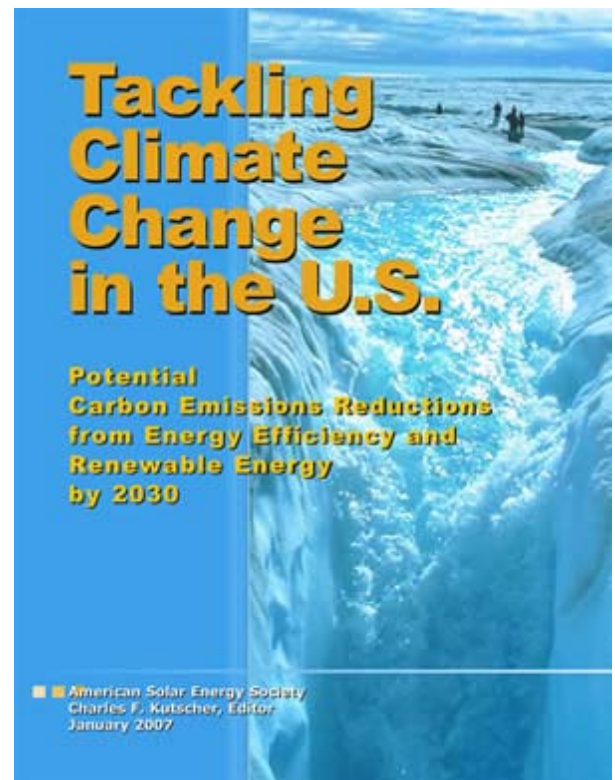
The United States is extremely rich in renewable energy resources. The ASES study finds that renewable energy has the potential to provide approximately 50 percent of the US electric energy need projected for 2030 once the contribution of energy efficiency is taken into account.

## Potential carbon reductions (million tons of carbon per year in 2030)

Energy efficiency	688
Concentrating solar power	63
Photovoltaics	63
Wind	181
Biofuels	58
Biomass	75
Geothermal	83

This report will help policymakers understand the enormous contributions energy efficiency and renewable technologies can make in addressing global warming. Due to the urgency of climate change, we cannot afford to wait any longer to drastically reduce carbon emissions. Energy efficiency and renewable technologies can begin to be deployed on a large scale today to tackle this critical challenge.

*"Energy efficiency and renewable energy technologies have the potential to provide most, if not all, of the U.S. carbon emissions reductions that will be needed to help limit the atmospheric concentration of carbon dioxide to 450 to 500 ppm."*



Download the report at:

<http://www.ases.org/climatechange>

(Over for more information)

## The Outlook on Renewable Energy in America (2007)

American Council On Renewable Energy (ACORE)

"*The Outlook on Renewable Energy in America*" is a scenario of what is achievable if the country is willing to embrace the public policies to make it happen. The report presents a series of outlooks on the future of renewable energy in America, by a range of organizations that gave presentations at the policy conference "*Phase II of Renewable Energy for America*" on November 30, 2006 in Washington, DC.

According to the reports, there is a need to recognize the many significant public benefits of renewable energy for domestic energy supply, national security, economic growth, environmental protection, global warming, investment opportunities, and job creation. There is a pressing need for stability of policy so that companies have a basis for making long-term investments in factories and the financial community can have reasonable confidence making investments in new projects.

According to experts, renewable energy could provide up to 635 gigawatts (GW) of new electricity generating capacity by 2025 – a substantial contribution and potentially more than the nation's need for new capacity, according to the US Energy Information Administration. This capacity will come from a wide array of new technologies, utilizing the full range of our renewable resources. In 2006, the US electric power sector net summer capacity from all sources was 958 GW.

### Renewable Power by 2025:

#### Total Prospects of 635 Gigawatts (GW)

Wind power	248 GW
Solar energy and power	164 GW
Water power	23 GW
Geothermal energy and power	100 GW
Biomass energy, power, and fuels	100 GW

Reports available at:

<http://www.acore.org/theoutlook07.php>

## Clean Energy, a Strong Economy and a Healthy Environment (2006)

Western Governors' Association

*"The results of this process were surprisingly robust and optimistic. While some might consider the goal of 30,000 MW quite aggressive, the process documents that clean energy technologies can meet and even exceed this goal."*

The Western Governors' Association (WGA) is encouraging the region to utilize its diverse resources to produce affordable, sustainable, and environmentally responsible energy. The Governors priorities were outlined in a resolution that the Governors passed at their 2006 Annual Meeting. The resolution is based on the Governors' Clean and Diversified Energy Advisory Committee's (CDEAC) report, which identified the necessary changes in state and federal policy to achieve the following goals:

- Develop an additional 30,000 megawatts of clean energy by 2015 from both traditional and renewable sources;
- A 20 percent increase in energy efficiency by 2020; and
- Ensure a reliable and secure transmission grid for the next 25 years.

In 2004, Western States had 9,134 megawatts of nameplate, clean and diverse energy generating capacity. If projections are accurate, industry in the West will add over 7,500 megawatts of the Governors' goal of 30,000 megawatts of clean and diverse energy between 2005 and 2007. WGA finds that with appropriate state, regional and federal policy support and future growth that stays consistent with the clean energy activity seen since 2004, the West will have over 80,000 megawatts of clean and diverse energy generating capacity by 2015.

Task forces chartered by the CDEAC produced reports on Biomass, Geothermal, Solar, Wind, Energy Efficiency, Transmission and Advanced Coal. Additional working group reports were produced for Carbon Management, Policy and Technology. White papers were produced on Combined Heat and Power (CHP) and Water Energy. CDEAC found that the goal of achieving 30,000 MW of clean energy by 2015 is within reach. The benefits of this goal would be substantial. Together, these technologies can provide reliable, cost-effective energy to meet the needs of the West, while improving environmental quality, enhancing national security, and providing tens of thousands of new jobs and stimulating economic growth.

Reports available at:

[http://www.westgov.org/wga\\_reports.htm](http://www.westgov.org/wga_reports.htm)

(Over for more information)