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From: [American Society of Civil Engineers](#)  
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## Free White Papers on the Engineer's Role in Mitigating Global Warming

**Civil and environmental engineers will play a key role in responding to many of the projected impacts of global climate change, including impacts to water supply from drought, and the potential for increased flooding due to sea level rise and rainfall patterns. As leaders responsible for the public's physical well-being in terms of the performance of infrastructure, engineers need to consider and debate these issues and prepare for the future now.**

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The American Society of Civil Engineers has published a 73-page, special issue of Leadership and Management in Engineering, entitled Engineering Strategies for Global Climate Change.

In this collection of feature articles, several writers present visions of the future for which the engineering profession needs to further respond and act.

The articles are available online free to the public at <http://pubs.asce.org/globalwarming>.

The feature articles discuss a range of issues that need to be considered in context of global climate change, including:

☐ **Power Generation:** An array of 130 Wind power turbines located off the coast of Cape Cod, Massachusetts could provide up to 75% of that region's electricity needs with zero carbon dioxide emissions, but the project is not without controversy. This project can be seen as a business case study of the trade-offs the United States must face for its energy future.

☐ **Building Design:** Designers of the next generation of buildings will aim for "zero energy" buildings in which there will be no need to draw energy from a region's power grid. Examples of existing buildings mostly in Europe and Asia are already approaching this ideal.

☐ **State Climate Change Action Plans:** These could mitigate the impacts of global warming and save the economy billions of dollars, influencing how governments and agencies plan transportation and other projects in the future.

☐ **Storms, Flooding and Coastal Dikes:** If reducing our carbon footprint is not enough, or such measures are of a scale that may not be effective or implemented in time, then we are compelled to consider the possible need for dikes, tidal, and wave protection structures for our coastal cities. This forward vision is discussed in "Must New York City Have Its Own Katrina?"☐

☐ **Droughts and the Water Supply:** The Southwest United States, including California, Nevada, Utah, Wyoming, among others, are all linked through dependence on the Colorado River for water. These and other regions in the United States may run out of water as part of naturally occurring droughts potentially exacerbated by global climate change. The concept of a "water footprint"☐ and the relationship between energy, greenhouse gas emissions, and water is described.

☐ **Land Use Implications:** Alternative biofuels such as ethanol hold a prospect of reducing humanity's carbon footprint, but the cycle of fuel delivery has important land-use policy implications.

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"□ No-Regrets Technologies: A contrarian view is presented to what has now become the generally accepted consensus that the present global warming is largely caused by mankind's activities. It acknowledges that global warming is occurring, but that it is a natural phenomenon, part of a 1,500-year cycle. Despite this, the writer advocates what he terms the use of "no-regrets"□ technologies.

The seven feature articles, the special issue editor's preface, and a related end-piece article are available online free to the public at <http://pubs.asce.org/globalwarming>. Print copies of Engineering Strategies for Global Climate Change may also be purchased for \$30 (ISBN: 978-0-7844-0997-8, American Society of Civil Engineers).

Founded in 1852, the American Society of Civil Engineers (ASCE) represents more than 140,000 civil engineers worldwide and is America's oldest national engineering society. For more information, visit [www.asce.org](http://www.asce.org).

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