



Enron's Global Climate Change Statement





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# Enron's Global Climate Change Statement

**G**lobal climate change and its potential impacts are among the most debated environmental issues of our time. The science behind climate change is complex; and, because the implications of climate change are both serious and uncertain, its prospect is a matter of concern for today's global community.

Enron believes that companies and institutions worldwide must find efficient ways to reduce greenhouse gas emissions that result from normal economic activities. The lack of scientific certainty over climate change does not justify inaction. Continued scientific research and rigorous economic analysis is necessary – but meaningful, cost-effective, and flexible mitigation activities can be taken now to prevent the need for more onerous and costly measures in the future. Many of these measures also deliver collateral benefits such as improved local air quality and resource conservation.

Enron is well-positioned to deliver cost-effective, flexible solutions that will help mitigate the potential problems

linked with climate change. Enron encourages governments and businesses to work together to address this global problem.

## What is Climate Change?

Climate change, also known as “global warming,” is a phenomenon that occurs when “greenhouse gases” are released into the atmosphere. The causes of climate change as well as its impact on our environment and human health are the subject of intense scientific research and modeling.

Greenhouse gases include carbon dioxide (CO<sub>2</sub>), which is emitted through deforestation and the burning of fossil fuels; methane (CH<sub>4</sub>), which results from normal livestock and agricultural activities; and halocarbons (HFCs, PFCs), nitrous oxide (N<sub>2</sub>O), and sulfur hexafluoride (SF<sub>6</sub>) that are released by certain industrial processes.

Climate change has the potential to significantly impact ecological, economic, and social systems. Programs to mitigate the risks of climate change will affect the way we live and do business including, the fuels we use, the power technologies we employ and how energy services are provided.



# Enron's Views on Global Climate Change

**A**t the core of Enron's business philosophy are the beliefs that open and competitive energy markets allow consumers to make well-informed choices about how they use energy, and that competition leads to better energy investment decisions. Enron's position on climate change is consistent with these views. Market-based energy and environmental solutions will create the most cost-effective, efficient, and environmentally sound systems for reducing greenhouse gases and provide the

greatest amount of choice and flexibility for institutions worldwide. By aligning regulatory goals with the proper incentives and market-oriented mechanisms – including liberalization of energy markets – greenhouse gas reduction will cost less and we will achieve our goals faster than predicted.

## Policy Debates on Climate Change Impacts, Solutions and Enron's Role

### Enron's Climate Change Principles

- *Lack of scientific certainty does not justify inaction.*
- *Concrete steps to reduce emissions should be taken now by investing in new, more efficient products, practices, technologies, and administrative systems.*
- *Continued engagement of all parties is needed to form agreements to address climate change.*
- *Market-based, economically-viable systems should be developed to reduce emissions.*

**F**or over a decade, a wide range of stakeholders – including governments, scientists, businesses, and environmentalists – have been meeting annually under the auspices of the [United Nations Framework Convention on Climate Change](#) to consider the scientific basis, economic and environmental consequences, and potential remedies that could derive from climate change. Enron has participated in these meetings, offering its expertise on market-based energy and environmental solutions.

Enron recognizes that climate change is a global challenge and supports binding, multilateral agreement on systems to solve it. The [Kyoto Protocol](#) is an international treaty that was adopted in December 1997 in Kyoto, Japan, but has not been implemented. While some countries have signed the treaty, it has not been ratified due to outstanding questions about the Protocol's rules and compliance consequences.



Critical issues still under consideration in international and domestic discussions on climate change include regulatory certainty for greenhouse gas emission reductions, flexibility of mitigation activities, and participation by developing countries. Enron continues to share its expertise on how market-based mechanisms included in the Kyoto Protocol – such as emissions trading – could be structured to work effectively.

Enron works with its customers along with local, regional, and federal government entities to promote

incentives for energy efficiency, investments in clean energy technologies, and greenhouse gas emissions reductions.

Enron is also an active participant in business organizations like the [U.S. and European Business Councils for Sustainable Energy](#), [the World Business Council for Sustainable Development](#) and the [Pew Center on Global Climate Change](#), which constructively engage with policy makers and the environmental community on climate change and other energy-related challenges.

## Critical Issues in Climate Change Discussions

### Regulatory Certainty and Emissions Reductions:

Programs to encourage reductions of greenhouse gas emissions should allow for emissions baseline protection and should recognize reductions that are:

- *real* — reductions must have actually occurred;
- *surplus* — reductions must be more than a firm's regulatory obligation;
- *quantifiable* — reductions must be measurable and verifiable; and
- *certifiable* — reductions become credits when credit-granting guidelines are applied to reductions.

### Flexible Mitigation Activities:

Market-based solutions such as emissions trading and promoting investment in clean development and technology transfer hold the key to cost-effective greenhouse gas reductions and should be part of any system to address climate change. On a domestic U.S. level, national multi-pollutant strategies that combine declining emissions caps with regulatory reform could provide a workable model to address carbon dioxide emissions.

### Developing Country Participation:

Enron believes that large emitters, including developing countries, have a role to play in efforts to address climate change. The contribution, per capita, of developing countries to greenhouse gas emissions is small today, but they are the greatest source of future growth. The structure and time frame for developing country participation in an international system is under consideration. In the meantime, opportunities to reduce emissions should be encouraged by governments now, while political agreements are developed and negotiated.



# Leading by Example

## What Enron is doing about Climate Change

**E**nron believes that businesses worldwide can and should take concrete steps now to invest in new, more efficient products, practices, technologies, and administrative systems.

As a leading provider of innovative energy solutions, Enron is helping to meet the world's energy needs while decreasing the impact of energy production on the climate. Enron's resources include a wide range of fuels, technologies, and services that bring efficient, cost-effective energy to consumers.

In addition to solutions-oriented business lines, Enron takes steps to reduce emissions internally. Enron recently completed its initial greenhouse gas emissions inventory. This is a first step towards understanding internal emissions trends and identifying emissions reduction opportunities. Enron also incorporates innovative energy efficiency practices in the operation of our facilities and corporate offices.



*In 1998, Enron received the Environmental Protection Agency's (EPA) [Climate Protection Award](#) for its "exemplary efforts and achievements in protecting the global climate."*

### Enron's Climate Solutions

**Helping customers use resources more efficiently and reduce emissions**

- Enron develops and invests in low-to-zero emissions electricity generation (natural gas combined cycle, cogeneration, wind, and fuel cells).
- Enron delivers low-emissions energy (by transporting, trading and marketing natural gas and renewable energy).
- Enron provides services to assist with better energy management, consumption, and efficiency practices.
- Enron offers market-based solutions such as emissions trading and environmental risk management products.



# Enron Offers Climate Change Solutions

## Energy Efficiency – Better Energy Management and Consumption

**E**nron Energy Services is building a business to optimize energy consumption by providing integrated energy and facility management solutions that lower energy costs, improve operational efficiencies, and enhance environmental performance.

Enron Energy Services currently manages energy at over 28,500 customer sites. Managing a customer’s energy assets and operations results in significant energy savings. Already, contracts signed within the last two years represent a reduction of approximately 10.2 billion kilowatt hours of electricity consumption and 22 trillion Btus of natural gas consumption between 2000 and 2012.

## Delivering Natural Gas and Low-Emissions Energy

**E**nron is a world leader in delivering low-emissions energy resources, and we strive to minimize the environmental impact of our assets through best management practices and innovative technologies.

Enron’s expertise in the transportation and delivery of natural gas – the cleanest burning fossil fuel – has positioned Enron as a leader in meeting the growing demand for fuels that can substantially reduce greenhouse gas emissions. Enron Transportation Services operates over 25,000 miles of natural gas transmission in the United States, and Enron owns, operates, and develops natural gas pipeline, liquefied natural gas (LNG), and storage systems around the world.

As the largest wholesaler of gas in North America and one of the largest wholesalers worldwide, Enron buys and sells both physical and financial gas contracts, and offers a full array of financial risk management tools that provide customized energy products for both producers and end-users. Enron markets natural gas liquids worldwide and manages the world’s largest portfolio of fixed-price natural gas risk management contracts.

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*“Enron’s businesses help their customers improve efficiency and reduce emissions. We believe that incorporating environmental considerations into the way we manage risk, govern our projects, and develop products and services will help us maintain our competitive advantage.”*

**- Kenneth Lay, Chairman and CEO**

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Renewable energy will be an integral part of the world energy mix in the 21st century, and Enron is committed to helping our partners and customers design and implement energy solutions for their unique energy needs.



*Enron Transportation Services was awarded EPA’s [Natural Gas Star](#) Transmission Partner of the Year Award three years in a row for its Methane Leak Detection and Removal (LDAR) program. The program has resulted in real, verifiable reductions of over 1 billion cubic feet of methane throughout the pipeline system.*



## Efficient, Low-Emissions Power Generation

[Enron Wholesale Services](#) is leveraging Enron's expertise in power trading, asset development, dispatch services and electronic commerce with the creation of the Renewable Power Desk, which develops, markets and trades renewable power and its environmental attributes. In addition, the Renewable Power Desk enhances the value of Enron's investments in fuel cells and electronic controls by developing wholesale transactions in the distributed generation sector.

[Enron Energy Services](#) is currently delivering renewable energy and renewable energy certificates to its customers, which has a significant, positive impact on reducing greenhouse gas emissions.

Enron's focus on providing a diverse mix of fuels and technologies for power generation is a critical element in providing affordable, reliable, and environmentally sound energy. Enron develops efficient power generation and provides a host of solutions, including capital financing, commodity delivery, and risk management for industrial and public-sector customers worldwide. Enron invests in low-to-zero emissions technologies and projects such as natural gas combined cycle turbine plants and renewable energy generation.

Enron develops and operates a number of cogeneration power plants: these produce both heat and power, and emit proportionally fewer greenhouse gases when compared to conventional generation.

### Reducing Waste Through Gasification Technology

Enron has had an established presence in the Italian energy market since 1996 through its joint ownership with Saras S.p.A. of the 551 megawatt Sarlux integrated gasification combined cycle plant in Sardinia. Located within the Saras refinery, the plant employs combined cycle and proven oil gasification technology. Saras provides fuel for the plant in the form of process residues that, through gasification technology, are converted into synthesis gas to fuel the plant.





Enron maximizes the potential of cogeneration plants wherever it can by seeking to match power generation with consumers of steam and heat. Enron's subsidiary, NEPCO, provides engineering and construction services for a wide range of technologies to third party developers. Since 1999, NEPCO has helped to develop 7.9 gigawatts of power generation, of which 1.5 gigawatts (19 percent) are produced through cogeneration.

Enron's domestic electric utility, [Portland General Electric](#) (PGE) based in Oregon, has a diverse mix of power generating resources including, wind biogas

and fuel cells. PGE currently buys all of the power from Oregon's only wind power farm (25 megawatts); with plans for obtaining another 8 megawatts. PGE has been involved in demonstrating various applications of fuel cells in its service territory. The largest demonstration involves a commercially available 200 kilowatt unit that uses methane resulting from anaerobic digestion at a large sanitary waste treatment plant in Portland, Oregon. Plans are underway to install two prototype fuel cells in residential and commercial building structures. One of these is the advanced proton exchange membrane (PEM) fuel cell.



*Enron's Energy Services helped to install over 370 solar panels on the roof of the General Services Administration building in Boston, Massachusetts – making it the largest solar array in the Northeast.*

[Enron Wind](#) is one of the largest manufacturers, developers and operators of renewable wind power generation equipment and facilities worldwide. It has developed and/or sold more than 4,500 wind turbines that together provide approximately 1,550 megawatts of capacity.



In Texas, Enron Wind is currently constructing over 290 megawatts of wind power capacity, which is scheduled to come on line this year. These projects are expected to generate enough emission-free electricity annually to power approximately 111,000 average American homes and offset more than 1.8 billion pounds of carbon dioxide.



*In the last two years, PGE engineers have been designing and constructing a biogas extraction process involving the use of manure collected from Oregon dairy farms. The first 100 kilowatt demonstration farm is scheduled for operation by 2002 or earlier. Plans are underway for a larger facility capable of delivering between 4 and 5 megawatts.*



# Emissions Allowance Trading and Risk Management Services

Enron's in-depth knowledge of power and commodity markets allows us to offer customers emissions allowance trading as part of their comprehensive energy and environmental strategies. [Enron Global Markets](#) has emerged as one of the leading emissions allowance traders in the United States, with special expertise in the SO<sub>2</sub> and NO<sub>x</sub> allowance markets. Enron has helped to create liquidity and price discovery that have allowed emissions trading markets to grow, while developing increasingly innovative and flexible solutions to help businesses fulfill their environmental obligations and make the best possible choices to succeed in a newly competitive industry. Enron will actively help to develop global markets for credits or allowances related to greenhouse gas emissions reductions.

new innovative pollution control technologies, heat rate improvements, alternative fuels, replacement power, and the provision of emission allowances. Such innovative, "bundled" solutions can help customers lower overall compliance costs, increase emissions compliance certainty, and improve the financial performance of their generation assets.

## Enron's Environmental Leadership

**A**s a proven leader in the global energy marketplace, Enron is proud to be able to deliver cost-effective, flexible, market-based

*As one of the most active players in the SO<sub>2</sub> and NO<sub>x</sub> emissions markets, Enron is working to increase market liquidity. Maximizing the number of counterparties leads to increased competition and new opportunities for market-driven and cost-effective emissions reductions.*



solutions to help mitigate the potential problems associated with climate change. As

One of Enron's risk management solutions is Global Markets' Emissions Management Service – a partnership with large coal-fired generators to create an optimized emission compliance solution. The Emissions Management Service offers a long-term service that guarantees emissions compliance by bundling Enron's capabilities in risk management, technology, and finance to reduce emissions through

the scientific, economic, and policy debates continue on the best approaches to address climate change, Enron will continue to promote open, competitive markets for fuels, power technologies, environmental technologies, and energy services that will provide a wide range of meaningful choices to reduce greenhouse gas emissions.