



# Clean Energy for America

Why the 44th President Must Put America on the Clean Energy Path



# Clean Energy for America

Why the 44th President Must Put  
America on the Clean Energy Path

Bernadette Del Chiaro  
Rob Sargent  
Environment America

Tony Dutzik  
Frontier Group



December 2007

# Acknowledgments

The authors alone bear responsibility for any factual errors. The recommendations are those of Environment America. The views expressed in this report are those of the authors and do not necessarily reflect the views of our funders.

© 2007 Environment America, Inc.

*In 2007, Environment America became the new home of U.S. PIRG's environmental work, focusing exclusively on improving the quality of our environment and our lives. Drawing on more than 30 years of experience, our professional staff combines independent research, practical ideas and broad-based educational campaigns to help set the policy agenda, frame the public debate, and win real results for our environment.*

*Frontier Group conducts research and policy analysis to support a cleaner, healthier and more democratic society. Our mission is to inject accurate information and compelling ideas into public policy debates at the local, state and federal levels.*

For more information about Environment America, or for additional copies of this report, please visit our Web site at [www.environmentamerica.org](http://www.environmentamerica.org).

Cover photos: Istockphoto.com  
Layout: Harriet Eckstein Graphic Design

# Table of Contents

Executive Summary	1
Introduction: Why the 44th President Must Put America on the Clean Energy Path	4
Energy in America	6
America Uses Too Much Energy	6
America's Energy is Too Dirty	7
America is on a Dangerous Energy Path	7
America's Dependence on Dirty Energy Has Severe Consequences	7
Achievable, Affordable, and Meaningful Clean Energy Solutions	11
A Clean Energy Future is Achievable	11
A Clean Energy Future is Affordable	12
Clean Energy Offers Meaningful Global Warming Solutions	14
Clean Energy Will Improve America's Competitiveness and Security	14
Strong Public Support for Clean Energy	16
American Support for Clean Energy Solutions	16
American Support for Clean Energy in the Marketplace	17
A Clean Energy Agenda for the 44th President	19
Clean Energy Goals for America	19
Top Ten Policy Recommendations for America's 44th President	19
Notes	22



# Executive Summary

America has the technological know-how and the resources to move away from dependence on dirty and dangerous energy supplies. With the right goals and policies, the next president of the United States can provide America with the much needed leadership to achieve a clean energy future.

This document explains why the next president must act immediately to address America's growing energy crisis, and lays out a reasonable yet ambitious course for meeting America's future energy needs with clean, renewable energy.

**America is on a dangerous energy path.**

- Under business as usual conditions, America will use 22 percent more energy in 2030 than today, including 19 percent more oil and 41 percent more coal; imports of oil will increase 21 percent.
- America will emit 25 percent more carbon dioxide by 2030, making it virtually impossible for the world to achieve the emission reductions that

scientists tell us are needed to forestall the worst impacts of global warming.

- Americans will spend \$250 billion more on fossil fuels and nuclear energy than today.

**America has vast clean energy opportunities.**

- America can cut electricity use by 20 percent and natural gas use by 22 percent through cost-effective energy efficiency improvements, achieving considerable global warming pollution reductions.
- Automobiles can be engineered to go 40 miles per gallon, even without the widespread use of hybrid technologies. Raising fuel economy standards to 35 mpg by 2020 will save consumers \$26.5 billion annually, a further increase to 45 mpg would be even more effective.
- Wind power could generate more than twice the country's current electricity

demands; producing just 5 percent of the nation's power from wind would create \$60 billion in capital investment in rural America and provide \$1.2 billion in new income for farmers and rural landowners.

- Solar photovoltaic panels placed on just 7 percent of buildings could meet all U.S. electricity needs and large-scale thermal plants in the desert could meet all of America's energy needs and do so even while the sun is down.

#### **Americans support clean energy solutions.**

- 87 percent of Americans support developing renewable energy resources and 68 percent believe increased conservation is more important than increased production of fossil fuels.
- 77 percent of Republicans, 86 percent of Southerners, 81 percent of rural voters, 85 percent of independent voters and 92 percent of Democrats agree that the federal government should increase renewable energy, and 75 percent are willing to pay more to do so.
- 92 percent of American people support making cars and trucks more efficient.

**The 44th president must make a clear, unwavering commitment to clean energy and back it up with concrete policies that move America toward a new energy future.**

The next president should set the following goals to achieve a clean energy future for America:

1. **Reduce our dependence on oil** by saving at least one-third of the oil we

use today by 2025 through energy efficiency improvements and a switch to cleaner fuels.

2. **Harness clean, renewable, home-grown energy** sources like wind, solar and farm-based bio-fuels for at least a quarter of all energy needs by 2025.
3. **Save energy** with high performance homes, buildings and appliances so that by 2025 we use at least 10 percent less energy than we do today.
4. **Invest in new energy technologies and resources** by committing \$30 billion over the next 10 years to the development of clean energy solutions and shifting funds away from dirty energy resources.

**America's next president can provide America with much needed leadership by focusing on the following ten policies:**

- 1) Adopt the most stringent **appliance efficiency standards**.
- 2) Adopt the most stringent **building efficiency standards**.
- 3) Save oil through stronger **fuel economy standards** for vehicles and by promoting clean, alternative fuels.
- 4) Set a national **renewable electricity standard** that requires 25 percent of the nation's electricity to come from renewable sources by 2025.
- 5) Commit \$30 billion in **renewable energy funds** over the next ten years.
- 6) Make research, development and deployment of **solar energy** a centerpiece of the nation's energy plan.

- 7) **Reform utility policies** to reward efficiency and renewable energy.
- 8) Place a **moratorium on all new coal-fired power plants.**
- 9) **Reject nuclear power** including the re-licensing of aging nuclear power plants.
- 10) Control global warming pollution through a **national carbon cap.**



# Introduction: Why the 44th President Must Put America on the Clean Energy Path

The 44th president of the United States—whether it is Clinton, Edwards, Huckabee, McCain, Obama, Romney, or someone else—will enter office on January 20, 2009 facing an unprecedented energy crisis, and boundless clean energy opportunities.

America's addiction to dirty and dangerous sources of energy is the root cause of America's energy crisis and is responsible for many of the nation's biggest challenges. Our environment is endangered by global warming and pollution from fossil fuels. Our economy is threatened by volatile prices for many types of energy. Our national security is jeopardized by our dependence on unfriendly or unstable nations for critical energy supplies. And taxpayers are harmed when government throws billions of dollars in subsidies at dangerous and uneconomical energy sources while ignoring golden opportunities to move the nation to a cleaner, more secure energy future.

Americans are hungry for leaders who understand these challenges—and who have the vision and commitment needed to launch America on a clean energy path.

There is little time to waste. Scientists

tell us that if we continue to increase our emissions of global warming pollution, even for another four years, the world could miss our last opportunity to prevent dangerous, irrevocable changes to the global climate. Energy analysts warn that global supplies of oil are increasingly strained, with predictions of \$100 per barrel oil—once considered far-fetched—now mainstream. And the rapid development of clean energy technologies in other nations threatens to leave the United States, our industries and our workers behind.

But while this is a moment of crisis, it is also a moment of opportunity. We have the technology right now to change America's energy course for the better. There are opportunities to save energy in every part of American life—from our homes to our cars to our businesses—and most of those changes will save us money in the long run. Meanwhile, renewable energy technologies have emerged as a viable, cost-competitive player on the energy scene. America now has the tools to reduce our dependence on dirty and dangerous sources of energy while, at the same time, giving a boost to our economy.

The 44th president faces a choice. He or she can heed the American people's call for bold and visionary leadership toward a new energy future. Or, the next president can heed the siren's song of powerful interests like the coal, oil and nuclear industries, whose prescription for America is more of the failed policies and technologies of the past.

Before choosing our next president, the American people deserve to know where

the candidates stand and what they will do once elected. The next president must pledge, now during the campaign season, to commit to make clean energy a top priority of his or her administration. Then, when the 44th president assumes office in early 2009, he or she must act aggressively—beginning in his or her first 100 days in office—to lead America to a clean, secure energy future.

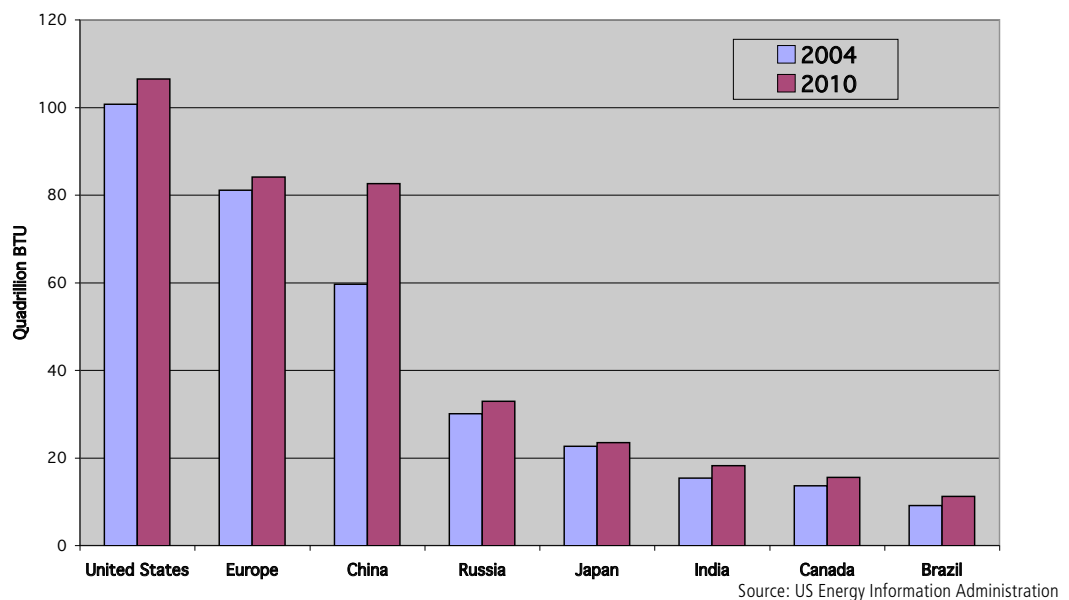
# Energy in America

A quick analysis of America's current energy situation shows that the United States must make great strides to improve its energy security and faces many tough challenges ahead. This section highlights where America currently gets its energy supplies, how America uses this energy and the consequences of our addiction to fossil fuels and other forms of dangerous, unsustainable energy.

## America Uses Too Much Energy

America is by far the world's largest consumer of energy. The United States consumed 23 percent of all the energy used in the world in 2004 and is expected to remain the largest consumer through 2010 (see Figure 1).<sup>1</sup> In fact, we currently use more energy than all the nations of

Figure 1. World's Top Energy Consumers, 2004 -2010



Western Europe combined, and we use about two-thirds more energy than China (though China's consumption of energy is rising quickly).<sup>2</sup>

## America's Energy is Too Dirty

### Where Does Our Energy Come From?

The vast majority of the energy used in America—about 83 percent—comes from fossil fuels. Despite America's vast potential for energy from the sun, wind, crops and other renewable sources, renewable energy accounts for a mere 5 percent of our total energy consumption as seen in Figure 2.<sup>3</sup>

Within the electricity sector (a subset of America's overall energy portfolio), America relies on fossil fuels for 72 percent of its electrical energy, with 50 percent coming from coal and 20 percent from natural gas. Nuclear energy accounts for 20 percent and non-hydroelectric renewable energy for less than 1 percent of the country's total electricity consumption (see Figure 3).<sup>4</sup>

### How is Our Energy Used?

About 40 percent of the energy consumed in the United States is used to generate electricity. Another 28 percent is used for transportation, with most of that used to fuel personal cars. Industry consumes about 32 percent of our energy, not counting electricity produced from electric power plants and consumed by industrial facilities.<sup>5</sup>

## America is on a Dangerous Energy Path

If America maintains its addiction to fossil fuels, and continues to use more and more energy each year, we face an

increasingly dangerous and unsustainable energy future.

### Increased Energy Consumption

The U.S. Department of Energy predicts that America will use 22 percent more energy in 2030 than today (see Figure 4).<sup>6</sup> We will use 19 percent more oil and other liquid fuels, 19 percent more nuclear power, and 41 percent more coal. And while, within the electricity sector, renewable electricity from sources such as solar, wind and geothermal power will nearly double, that increase won't be enough to make a serious dent in our nation's energy problems.<sup>7</sup>

### Increased Energy Imports

If America remains on its current dirty energy path, we will import 21 percent more oil in 2025 than today.<sup>8</sup> We will also increase our dependence on other nations for natural gas. By 2030, according to the Department of Energy, U.S. imports of Liquefied Natural Gas (LNG) will increase nearly 100 percent, with most of these imports coming not from neighboring nations like Canada and Mexico, but from overseas nations via tankers.<sup>9</sup>

## America's Dependence on Dirty Energy Has Severe Consequences

The economic and environmental consequences of America's over-dependence on dirty and unsustainable energy resources are severe.

### Dependence on Foreign Countries

America obtains too much of our energy from foreign nations and this dependence has increased dramatically in the last two decades. In 1985, imports represented only 15 percent of U.S. energy consumption; today, they represent 34 percent.<sup>10</sup> (see Figure 5) As a result, we leave our energy

Figure 2. Total U.S. Energy Consumption by Source, 2007

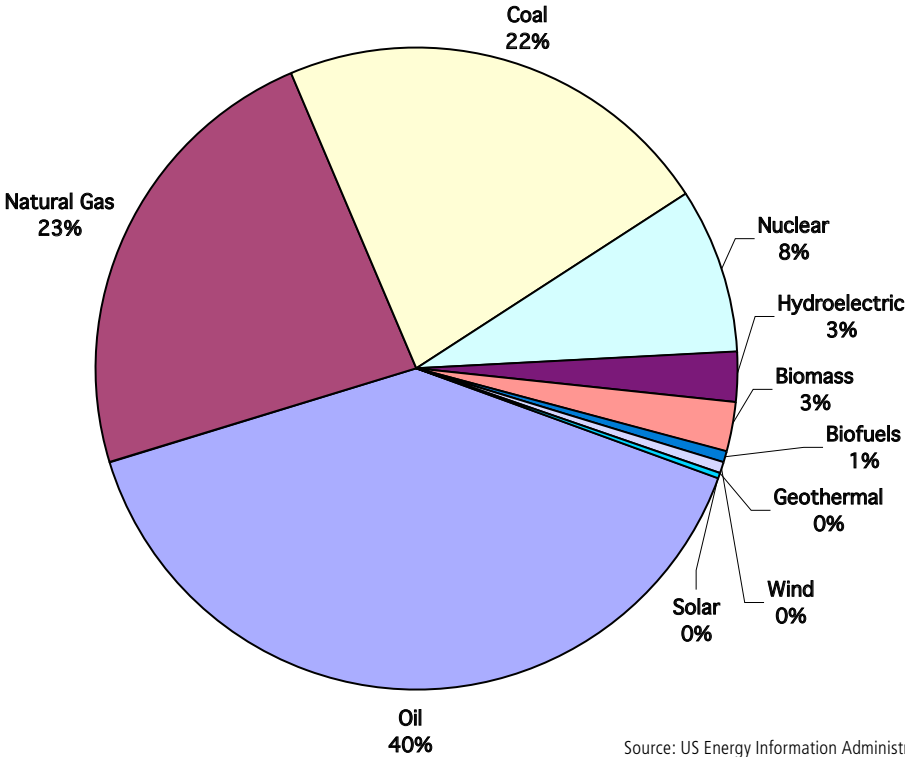
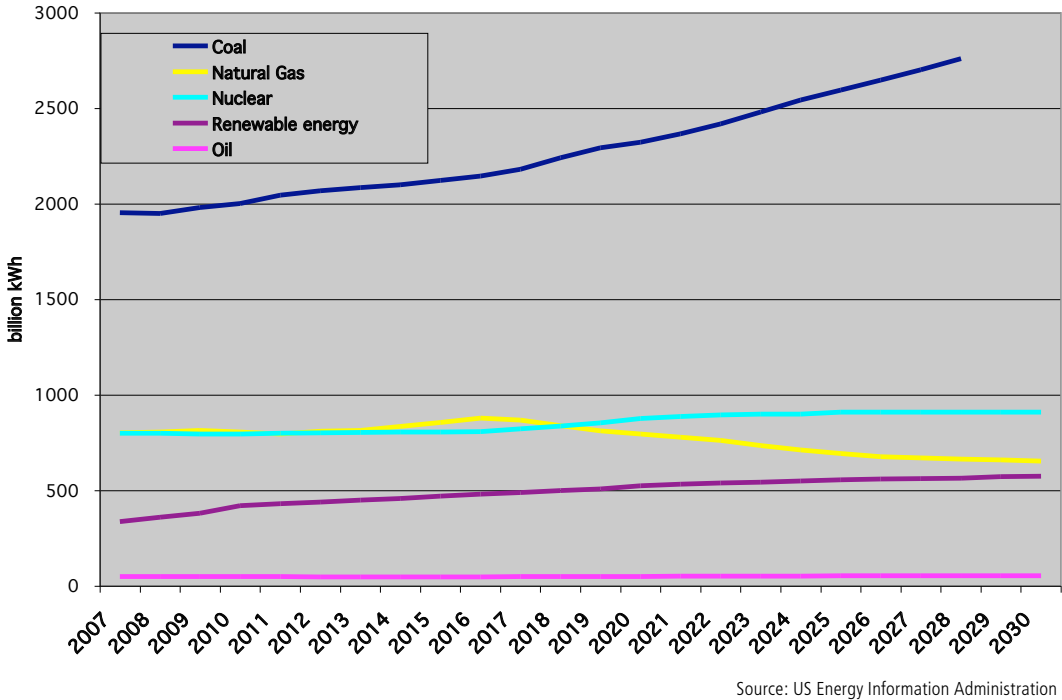
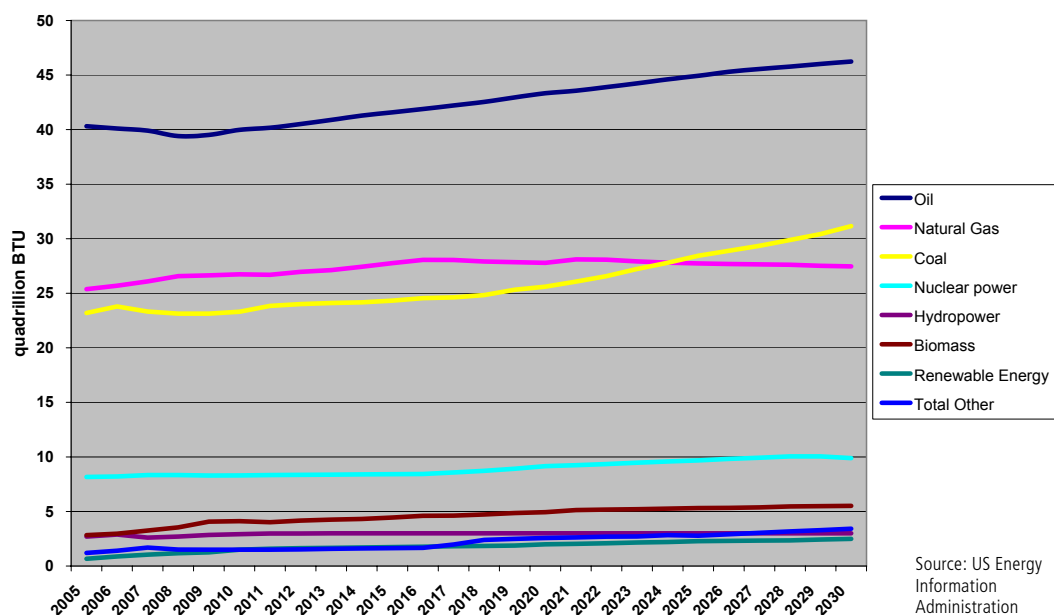


Figure 3. U.S. Electricity Generation by Fuel, 2007-2030



**Figure 4. U.S. Total Energy Production and Imports, 2005-2030**



supplies and national security vulnerable to political instability abroad.

### Global Warming and Environmental Damage

Coal combustion is responsible for over a third of the country’s energy-related emissions of carbon dioxide.<sup>11</sup> And despite the hype regarding “clean coal” technologies, there are no coal-fired power plants anywhere in the world that currently store carbon dioxide underground at the scale needed to meaningfully reduce global warming emissions.

If America stays on its current energy path, our contribution to global warming and environmental damage will only worsen with time. The Department of Energy forecasts that America will emit 25 percent more carbon dioxide, the leading pollutant responsible for global warming, by 2030.<sup>12</sup> (see Figure 6) Because America is already the world’s leading global warming polluter, such an increase would make it virtually impossible for the world to achieve the emission reductions that scientists tell us are needed to forestall the worst impacts of global warming.<sup>13</sup> The

scientific consensus in support of global warming shows that the burning of coal cannot be considered a reasonable replacement for increasingly constrained supplies of oil and natural gas.

In addition to global warming, fossil fuel combustion causes a range of environmental and public health impacts, including developmental problems in children resulting from exposure to mercury from coal-fired power plants, lung disease and premature death from smog and soot pollution, and oil spills from offshore drilling and the transport of oil.

### Economic Impacts

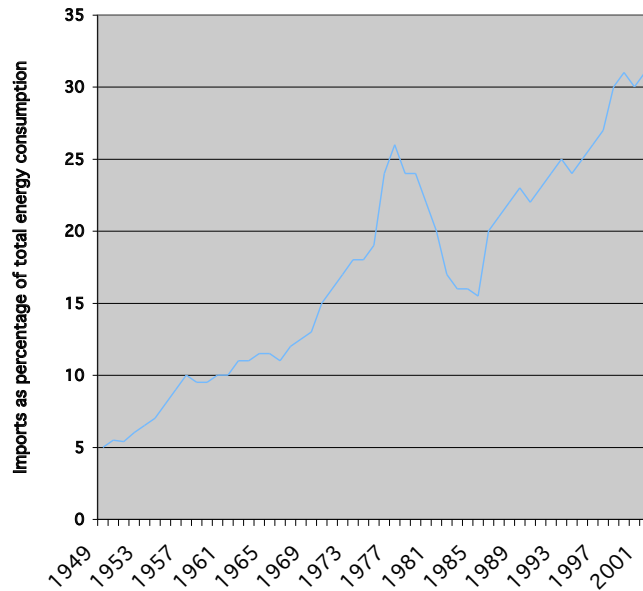
Fossil fuel dependence is projected to continue to take money out of Americans’ pocketbooks, with Americans spending \$250 billion more on fossil fuels and nuclear energy by 2030 than we do today.<sup>14</sup> Much of this money is sent overseas, where it helps other nations—rather than building our local economies.

America also faces potential costs from taxpayer subsidies to dangerous and expensive forms of energy, such as nuclear power. Nuclear power is extremely expensive.

Between 1947 and 1999, the federal government handed out \$145 billion dollars in federal subsidies for the nuclear industry—more than \$1 billion for every operating nuclear plant in the U.S.<sup>15</sup> The United States

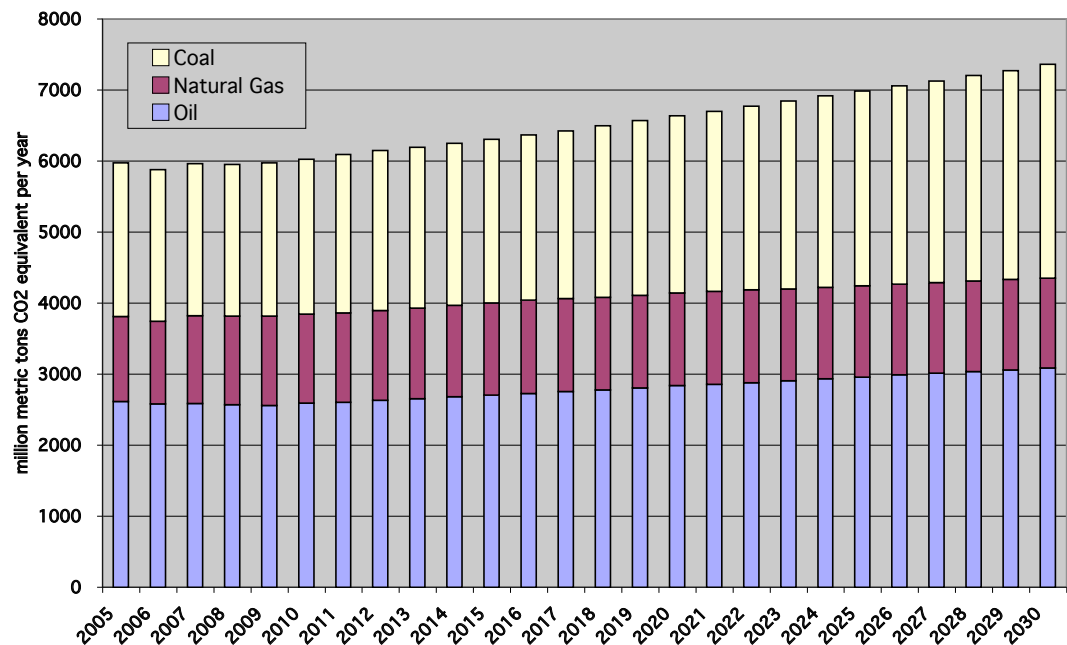
taxpayer is again on the hook for \$13 billion in additional subsidies enacted in the 2005 federal energy bill.<sup>16</sup> These subsidies have been, and will continue to be at the expense of cheaper, cleaner and safer options.

**Figure 5. Historic Energy Imports as Percentage of Total US Energy Consumption**



Source: US Energy Information Administration

**Figure 6. US Carbon Dioxide Emissions by Sector and Fuel, 2005-2030**



Source: US Energy Information Administration

# Achievable, Affordable and Meaningful Clean Energy Solutions

America is the most technologically and economically advanced nation in the world, blessed with vast natural and intellectual resources. Our nation has a track record of responding to major challenges and achieving unimaginable goals. If any nation in the world is capable of creating an energy system that can fuel our economy while preserving our environment and our long-term security, it is us. This section highlights the feasibility of a clean energy future as well as some of the great benefits for our environment and economy.

## A Clean Energy Future is Achievable

A wholesale shift to clean, renewable energy in America is achievable in the near term with technologies that exist today.

### Energy Efficiency

The first step for America to enter a new clean energy era is to reduce the rate at which we consume energy. The good news is that the technology exists today

to dramatically reduce our energy consumption while continuing to maintain our economy and a high quality of life. In fact, we have already done this in the United States.

In 1979, the United States consumed 80.9 quadrillion BTU of energy. From 1979 to 1982, energy use in the U.S. declined each year, and energy consumption did not surpass its 1979 level again until 1988.<sup>17</sup> Over that nine-year period of time, the nation's inflation-adjusted gross domestic product (GDP) increased by 30 percent.<sup>18</sup>

The American Council for an Energy-Efficient Economy (ACEEE) estimates that cost-effective energy efficiency opportunities exist today to cut electricity use by 20 percent and natural gas use by 22 percent.<sup>19</sup> Given reasonable assumptions about future electricity consumption, this would result in an electricity demand in 2025 barely higher than in 2005.<sup>20</sup> If oil and natural gas prices remain high or continue to increase over time, the potential for cost effective energy efficiency gets even better. Furthermore, studies completed over the last few years show that automakers have the technology to achieve fuel economy



standards of 40 miles per gallon or more over the next decade, even without the widespread use of hybrid technologies which have become increasingly popular with drivers in recent years.<sup>21</sup>

## Renewable Energy

Also at America's fingertips are the clean technologies and resources needed to replace the fossil fuels we use today. From coast to coast, America has tremendous potential to harness energy from the sun, wind, crops and other natural forces.

America's wind power potential has been estimated at upwards of 10 trillion kilowatt-hours annually—more than twice the amount of electricity currently generated in the United States as a whole.<sup>22</sup> The Great Plains has been aptly dubbed the “Saudi Arabia of wind” for its vast, high quality wind resource, and many of our offshore areas are similarly blessed with strong, consistent winds.

America also has tremendous potential to generate energy from the sun. Solar photovoltaic panels placed on just 7 percent of American buildings would be enough to meet all of our electricity needs and large-scale thermal power plants in America's vast desert regions could meet all of America's energy needs and do so even while the sun is down through energy storage technologies.<sup>23</sup>

Geothermal energy also provides large-scale potential for the generation of clean electricity through the harnessing of superheated water buried beneath the earth's surface. America already generates about 14 million megawatt-hours of electricity each year from geothermal energy.<sup>24</sup> Geothermal power is expected to increase by 50 percent by 2030.<sup>25</sup>

Other renewable technologies are emerging as well. Low-impact tidal energy — which uses turbines to generate electricity from water flows — has the potential to provide significant amounts of electricity. Analysts with the Electric

Power Research Institute suggest that the amount of power that can be tapped from the tides could be as much as 10 times the amount currently generated from hydroelectric dams, which provided about 8 percent of America's electricity in 2003.<sup>26</sup> Plans are underway on a number of projects which will capture the power of ocean waves.<sup>27</sup> Biomass—in the form of plant wastes and energy crops—also has great potential to meet America's energy needs. It is estimated that energy crops could ultimately provide up to 14 percent of U.S. electricity or 13 percent of motor fuel, while at the same time bolstering the health of rural economies.<sup>28</sup>

## A Clean Energy Future is Affordable

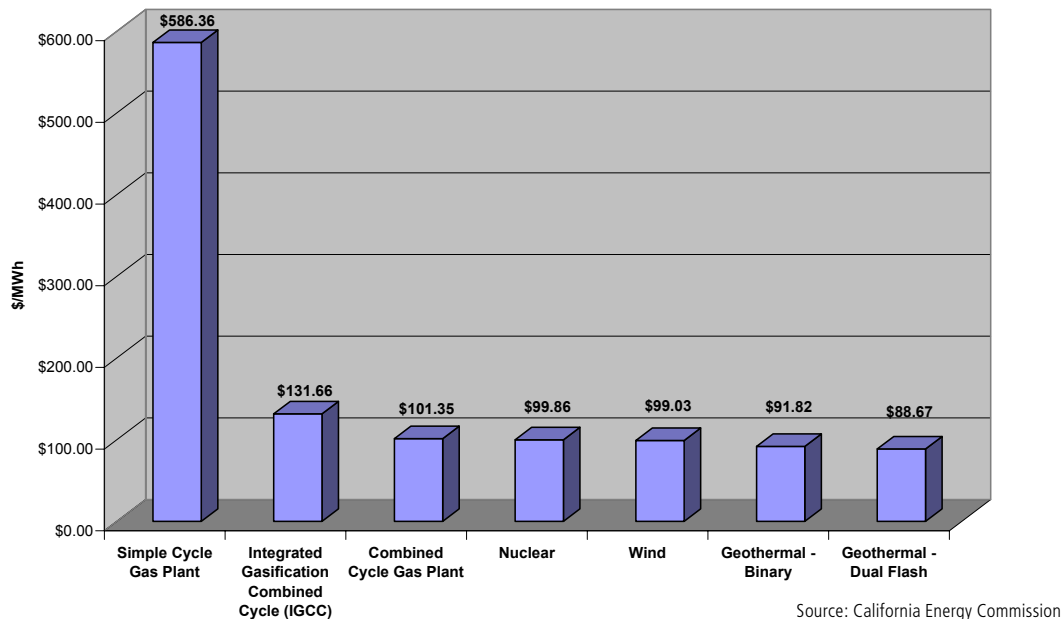
### Energy Efficiency and Renewable Energy Costs

Energy efficiency is the cheapest, fastest way to reduce America's dependence on fossil fuels. The cost of energy efficiency improvements varies, but is estimated at between 2.3 and 4.4 cents/kWh, compared to an average retail electricity price of 8.9 cents/kWh in 2006.<sup>29</sup>

Renewable energy is also becoming cost-competitive with fossil fuel power plants. In fact, in some areas of the country, wind and geothermal power are already the lowest-cost resource (see Figure 7) for electrical generation. A recent projection of power plant costs in California estimated the cost of renewable energy at between \$88/MWh – \$99/MWh—less than the cost of new nuclear, natural gas and gasified coal power plants.<sup>30</sup>

In addition, the cost of electricity from solar thermal power plants has dropped by two-thirds since the mid-1980s and the future promises further reductions. The

**Figure 7: Levelized Cost of Building Electricity Generating Stations in California**



cost to manufacture photovoltaic (PV) modules fell 70% from 1975 to 2002 and the installed cost of solar PV has declined 4 percent per year over the last 15 years.<sup>31</sup> These costs are likely to keep going down as the industry gets larger and achieves economies of scale.<sup>32</sup> California has recently adopted a program to install a million solar roofs in ten years and, as a result, estimates that the cost of solar PV will be cut in half within a decade.

### Consumer Savings From Clean Energy

Beyond the competitiveness of renewable energy technologies, investing in energy efficiency and renewable energy can be cost-effective for the consumer. The U.S. Department of Energy estimates that new office buildings using a combination of solar design and energy efficiency can reduce energy costs by 30 to 50 percent.<sup>33</sup> Raising fuel economy standards to 35 mpg by 2020 will save consumers \$26.5 billion dollars annually, and stronger standards are achievable and would be even more effective.<sup>34</sup>

Ultimately, investments in clean energy can make energy cheaper—not just for those who make the investments, but for the entire country. A shift to renewable energy and efficiency in the electric sector, for example, is projected to produce electricity savings of \$36 billion by 2025.<sup>35</sup> The American Council for an Energy-Efficient Economy estimates that a policy path that reduces natural gas demand by 4 percent in the next five years would slash wholesale natural gas prices by one quarter, saving the American economy \$100 billion.<sup>36</sup>

### Fossil Fuel and Nuclear Power Costs

While the cost of renewable energy and energy efficiency is becoming more and more competitive, the cost of fossil fuel and nuclear power plants are going up. A recent study of the cost of building a new nuclear power plant found costs to range between \$83-110/MWh.<sup>37</sup> Meanwhile, the highly touted “clean coal” technology, Integrated Gasification Combined Cycle power plants (IGCC), are experiencing

soaring cost increases. Between 2004 and 2007, for example, one proposed IGCC plant experienced 100% cost increases, going from \$1,600/kW to \$3,300/kW. The company proposing the plant, TECO, had to cancel the project despite having received a \$130 million federal tax incentive.<sup>38</sup> As more and more carbon controls are adopted in the United States, the cost of generating electricity from fossil fuels will only increase.

## Clean Energy Offers Meaningful Global Warming Solutions

If America is to solve global warming in a meaningful way, it has to embrace clean energy solutions. Fortunately, studies show that by investing in clean energy now, America can get on track to solving global warming in the timeframe scientists tell us is necessary to stave off the worst impacts of climate change. According to one study, a clean energy transition would reduce emissions of carbon dioxide from electric generation 17 percent below current levels, and 37 percent below the levels projected by the U.S. Energy Information Administration by 2020.<sup>39</sup>

Many states have already begun to adopt clean energy solutions demonstrating sizable global warming benefits. For example, 25 states and the District of Columbia have adopted renewable energy mandates or portfolio standards. Together, these policies will reduce global warming pollution by 134 million metric tons per year by 2020, about 2 percent of U.S. carbon dioxide emissions in 2006.<sup>40</sup> If the federal government were to adopt the energy efficiency programs already in place at the state level, America could avert 265 million metric tons of carbon dioxide, 4 percent of 2006 emissions.<sup>41</sup>

## Clean Energy Will Improve America's Competitiveness And Security

### U.S. as Technology Leader

A clean energy future for America will do more than reduce the country's exposure to price spikes, supply disruptions, political instability and other repercussions of our reliance on fossil fuels. By developing and implementing energy efficiency and renewable energy technologies, the United States can once again emerge as the world's leader in developing advanced, clean technologies. Reasserting American leadership within this industry is important given that demand for clean technologies will only increase at home and abroad as the world responds to limited fossil fuel supplies and global warming. European nations like Spain, Germany and Denmark, as well as Japan, have taken over global leadership in the renewable energy industry from the United States in recent years, but America can regain its position of global leadership, with long-term benefits for our economy.

### Job Creation from Clean Energy

Job creation is just one of the other long-term benefits of shifting to clean energy. A recent study estimates that in 2006, the renewable energy industry accounted for more than 450,000 jobs nationwide. When energy efficiency technologies are also evaluated, this 2007 study found clean energy industries in the United States accounted for nearly a trillion dollars in sales and 8.5 million jobs.<sup>42</sup> A recent study by the Renewable Energy Policy Project commissioned by the United Steelworkers found that a national renewable electricity standard in the 15-20% range has the potential of creating 850,000 new jobs in component part manufacturing alone.<sup>43</sup> In another study, the Union of Concerned Scientists estimates that a 20 percent national renewable electricity standard

would create twice as many jobs as meeting demand growth with fossil fuels, while adding \$10.2 billion to the nation's gross domestic product.<sup>44</sup>

### **Rural Economic and Manufacturing Growth**

Many renewable energy technologies, such as wind, have potential advantages for rural economies. The U.S. Department of Energy estimates that producing about 5 percent of the nation's power from wind by 2020 would create \$60 billion in capital investment in rural America, provide \$1.2 billion in new income for farmers and rural

landowners, and create 80,000 new jobs. This new source of income could make the difference between insolvency and survival for many remaining family farmers.<sup>45</sup>

Investments in renewable energy sources also support American businesses that manufacture renewable energy components. Despite the ground lost by American renewable energy manufacturers over the past decade, significant manufacturing infrastructure remains. Creating a homegrown market for renewable energy technologies could ensure that these manufacturers remain and grow in the United States.

# Strong Public Support for Clean Energy

A clean energy future for America is not just technologically and economically feasible, but it is also broadly supported by the American people.

A variety of recent polls, as well as the actions of consumers in the marketplace, suggest that the public strongly supports bold action toward a clean energy future.

## American Support for Clean Energy Solutions

America's dependence on fossil fuels—and the resulting social, environmental, economic and political consequences—has become a subject of dinner table conversation in recent years. From the War in Iraq to \$100 per barrel oil prices to global warming, Americans are concerned about the impacts of our addiction to fossil fuels. Increasingly, Americans believe that embracing clean energy solutions has the greatest potential to address our nation's energy woes.

Poll after poll shows a strong level of support among average Americans for

clean energy solutions. Consider the following examples:

- 87 percent of Americans polled in a recent 2007 New York Times/CBS News poll support developing renewable energy resources such as wind or solar power.<sup>46</sup>
- 77 percent of Republicans, 86 percent of Southerners, 81 percent of rural voters, 85 percent of independent voters and 92 percent of Democrats agreed that the Federal government should establish a renewable electricity standard for resources such as wind and solar.<sup>47</sup>
- 92 percent of the American people support making cars and trucks go further on a gallon of gasoline.<sup>48</sup>
- 75 percent are willing to pay more for electricity generated from renewable energy sources such as wind and solar power.<sup>49</sup>

Americans are also turning away from our current dirty and dangerous forms of energy:

- 68 percent of Americans polled believe that encouraging energy conservation is more important than increasing the production of fossil fuels.<sup>50</sup>
- 59 percent disapprove of building a new nuclear power plant in their community to generate electricity.<sup>51</sup>

In large bipartisan numbers, Americans also believe global warming is real and that it is necessary to take immediate steps to address it. For example:

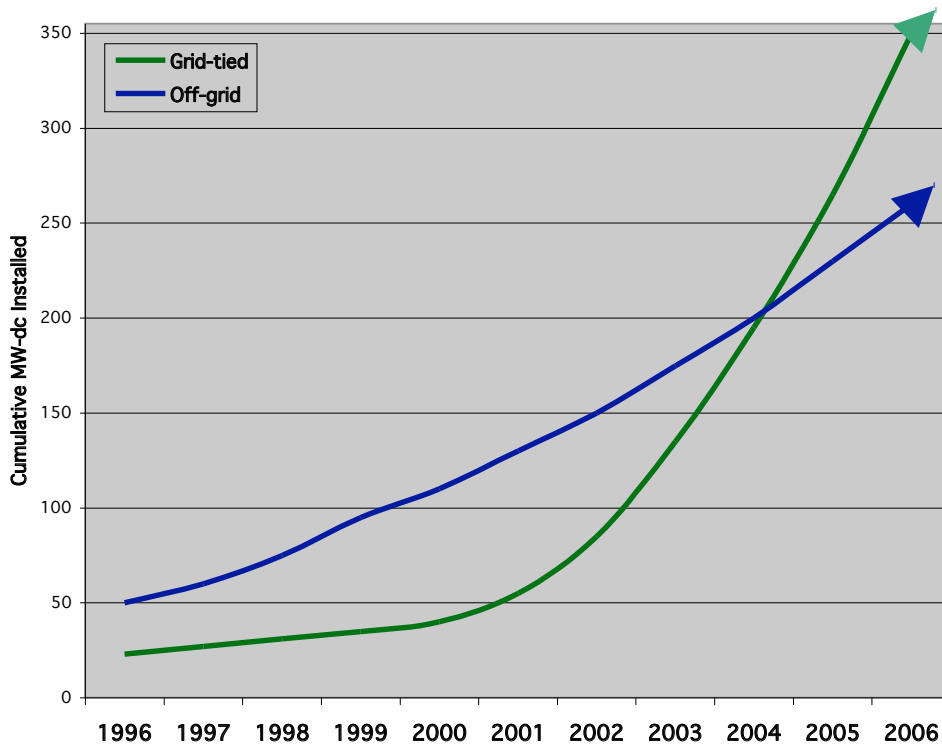
- According to the 2007 poll, 90 percent of Democrats, 80 percent of independents and 60 percent of Republicans supported immediate action to address global warming.<sup>52</sup>
- 78 percent believe it is necessary to take steps right away to address global warming.<sup>53</sup>

## American Support for Clean Energy in the Marketplace

Last but not least, Americans are making their support for clean energy heard in the marketplace.

In 2006, the U.S. market for solar power grew 20% compared with 2005, one of the fastest rates in the world (see Figure 8). The market for solar swimming pool heaters has grown 13% per year since 1997. More American consumers are also voluntarily choosing to spend more for green electricity. The US EPA Green Power Partnership program, for example, reported commercial purchases of green power going from 400,000 megawatt hours (MWh) in 2001 to 7 million MWh in 2006.<sup>54</sup> A 2007 National Renewable Energy Laboratory study found that more than 500,000 utility customers were participating in a green power program in 2006, up more than 10% since 2005. The participation in these programs

Figure 8. Cumulative US Solar PV Installations by Year



Source: Larry Sherwood IREC/PV News

spans the country including Iowa, Florida, Texas, Washington and Wisconsin.<sup>55</sup>

In addition, the number of hybrid electric cars on the roads has risen significantly in recent years. Sixty-eight percent of Americans polled say they would seriously

consider buying a hybrid electric car in the future, up from 18 percent in 2001, and 2% of respondents reported having already purchased a hybrid car, up from zero in 2001.<sup>56</sup>

# A Clean Energy Agenda for the 44th President

America's next president has the power to put the nation on a clean energy path. As Americans head to the ballot box to choose the next president, they deserve to know whether the candidates will take a bold stand to address the nation's energy challenges and what specific policy actions they will take to achieve their goals.

## Clean Energy Goals for America

The first step for the 44th president is to articulate a bold, national commitment to a clean energy future. The next president should set specific, ambitious goals for America's energy future. At a minimum we urge the 44<sup>th</sup> president to adopt the following targets as a framework for our nation's energy policy.

- 1) **Reduce our dependence on oil** by saving at least one-third of the oil we use today by 2025 (7 million barrels per day).

- 2) **Harness clean, renewable, home-grown energy** sources like wind, solar and farm-based bio-fuels for at least a quarter of all energy needs by 2025.
- 3) **Save energy with high performance homes, buildings and appliances** so that by 2025 we use at least 10 percent less energy than we do today.
- 4) **Invest in new energy technologies and resources** by committing \$30 billion over the next 10 years to the development of clean energy solutions and shifting funds away from dirty energy resources.

## Top Ten Policy Recommendations for America's 44th President

Ambitious goals aren't going to be enough. The next president must back up those goals with a commitment to specific policy actions that can move America



toward a new energy future. Adoption of the following 10 policy recommendations would put America on the road to a cleaner and more sustainable energy future.

### **1) Appliance efficiency standards**

The federal government should adopt the most stringent energy efficiency standards for the most common and energy-intensive appliances. The federal government should also allow states to set even stronger appliance standards, thereby driving new technologies and “raising the bar” for future efficiency improvements.

### **2) Building efficiency standards**

The federal government should adopt the most stringent energy efficiency standards for residential and commercial buildings, with a goal of making all new buildings “zero energy buildings” by 2030. The federal government should also encourage states to take innovative steps to further reduce energy consumption in buildings.

### **3) Reduce oil consumption in transportation**

The recent move by Congress to increase fuel economy standards to 35 mpg by 2020 is a meaningful step toward reducing our dependence on oil. But current technology enables us to go much further. The next president should raise fuel economy standards for cars, light trucks and SUVs to at least 45 miles per gallon over the next decade and a half, while also imposing strong efficiency standards for heavy-duty trucks. The federal government should also ramp up its investment in public transit and promote alternative transportation choices like telecommuting, carpooling, biking and walking. Lastly, the president should ensure that plant-based fuels like ethanol and biodiesel deliver the maximum benefits for the environment.

### **4) Renewable electricity standard**

Renewable electricity standards (RES) require that a certain percentage of electricity supplied to consumers come from renewable resources such as wind, solar, geothermal, landfill methane and clean biomass. The next president should enact a national renewable energy standard, similar to those already in place in 25 states plus the District of Columbia, which would require a minimum of 25 percent of the nation’s electricity to come from renewable sources by 2025.

### **5) Renewable energy funds**

Dedicated funds to support the development of renewable energy can play a key role in encouraging the development and market introduction of new forms of renewable energy. Renewable energy funds at the state level have successfully supported the emergence of rooftop solar power, for example, and pilot projects to demonstrate new technologies such as tidal power.

The 44th president should commit \$30 billion over the next 10 years to energy efficiency and clean renewable energy technologies while also providing consistent, long-term tax incentives for the installation of solar panels and other forms of renewable energy.

### **6) Increase solar energy**

Solar power is one of America’s greatest renewable energy resources, and one that can be scaled up within a relatively short period of time. From rooftop solar incentive programs to a national effort to tap into the enormous amounts of solar power in America’s southwestern deserts, solar power can play a leading role in moving America toward a clean energy future. To put America’s sunshine to work, the 44th president should make research, development and deployment of solar energy a centerpiece of the nation’s energy plan.

## **7) Utility reforms**

Regulatory policy and utility behavior will have a major impact on the successful emergence of renewable energy and energy efficiency. Policy-makers should revise regulations and practices to encourage critical reforms in the way in which we generate and transmit electricity. Specifically, the 44th president should require all utilities to meet growing energy needs through energy efficiency and clean renewable energy before building new power plants. The president should also ensure that utility profits and energy sales are decoupled, thereby removing a key obstacle to utility support of energy efficiency improvements. And transmission access rules as well as fair policies to encourage greater use of distributed generation, such as rooftop solar or combined heat and power, should be a cornerstone to the president's clean energy agenda.

## **8) Coal-fired power plant moratorium**

The construction of additional coal-fired power plants in the United States would result in increases in global warming pollution—taking America in exactly the wrong direction. The 44<sup>th</sup> president should place a moratorium on the construction of all new coal-fired power plants in the U.S.

while shifting all federal subsidies away from fossil fuels and toward clean energy resources. For example, the Department of Agriculture Rural Utility Service should redirect its low-interest loan program for rural electric cooperatives from funding coal-fired power plants to capitalizing on projects that help rural America and America's clean energy future such as wind farms, solar farms, methane-to-electricity systems, forestation and reforestation projects, or sustainably harvested biofuels.

## **9) Reject nuclear power**

The 44th president should also place a moratorium on the construction and relicensing of all nuclear power plants in the U.S. and shift the tens of billions of dollars in existing and proposed nuclear subsidies toward cleaner and safer alternatives.

## **10) National cap on global warming pollution**

America must concurrently address our addiction to fossil fuels through clean energy solutions advocated in this document, while capping global warming pollution to further stave off the worst effects of climate change. Specifically, the 44th president should adopt a greenhouse gas cap for the country, set at the levels dictated by science not industry.

# Notes

1. U.S. Department of Energy, Energy Information Administration, *International Energy Outlook*, 2007, May 2007.
2. Ibid.
3. U.S. Department of Energy, Energy Information Administration, *Annual Energy Outlook 2008 (early release)*, December 2007.
4. Ibid.
5. Ibid.
6. Ibid.
7. Ibid.
8. Ibid.
9. Ibid.
10. Ibid.
11. Ibid.
12. Ibid.
13. The United States was responsible for nearly one-quarter of the world's emissions of carbon dioxide, the leading global warming pollutant, in 2003. To prevent concentrations of carbon dioxide and other global warming pollutants in the atmosphere from exceeding the levels scientists believe could trigger catastrophic global warming, the world will need to halt the growth of global warming emissions in this decade, begin reducing emissions soon, and slash emissions by more than half by 2025. Should U.S. global warming emissions increase by 27 percent over today's levels by 2025 as projected, it will be difficult or impossible for the rest of the world to achieve the emission reductions necessary to forestall the worst impacts of global warming. For further, detailed discussion of this topic and references to further data on global warming, please see U.S. PIRG Education Fund, *Rising to the Challenge: Six Steps to Cut Global Warming Pollution in the United States*, Summer 2006.
14. See note 3.
15. \$145 billion from Marshall Goldberg, Renewable Energy Policy Project, *Federal Energy Subsidies: Not All Technologies Are Created Equal*, July 2000.
16. Public Citizen, *Nuclear Giveaways in the Energy Bill Conference Report*, downloaded from [www.citizen.org/documents/energybillnukeconfreport.pdf](http://www.citizen.org/documents/energybillnukeconfreport.pdf), 22 February 2007.
17. U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 2003*, 7 September 2004, Table 1.1d.
18. U.S. Department of Commerce, Bureau of Economic Analysis, *National Economic Accounts: Gross Domestic Product*, downloaded from [www.bea.doc.gov/bea/dn/home/gdp.htm](http://www.bea.doc.gov/bea/dn/home/gdp.htm), 2 March 2005.
19. Steven Nadel, Anna Shipley and R. Neal Elliott, American Council for an Energy-Efficient Economy, *The Technical, Economic and Achievable Potential for Energy-Efficiency in the United States – A Meta-Analysis of Recent Studies*, 2004.

20. Bruce Biewald, David White, et al, Synapse Energy Economics, *A Responsible Electricity Future: An Efficient, Cleaner and Balanced Scenario for the U.S. Electricity System*, 11 June 2004.
21. See, for example, Don MacKenzie and David Friedman, Union of Concerned Scientists, *UCS Analysis of Fuel Economy Potential*, memorandum to Julie Abraham and Peter Feather, NHTSA, 29 April 2005.
22. U.S. Department of Energy, Office Energy Efficiency and Renewable Energy, *Wind Powering America: Clean Energy for the 21st Century*, downloaded from [www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/wpa/35873\\_21century.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/wpa/35873_21century.pdf), 2 March 2005.
23. U.S. Department of Energy, National Center for Photovoltaics, *How Much Land Will PV Need to Supply Our Electricity*, downloaded from [www.nrel.gov/ncpv/land\\_faq.html](http://www.nrel.gov/ncpv/land_faq.html), 3 March 2005.
24. U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, *Solar Hot Water and Space Heating & Cooling*, downloaded from [www.eere.energy.gov/RE/solar\\_hotwater.html](http://www.eere.energy.gov/RE/solar_hotwater.html), 8 September 2005.
25. EIA (2007) *Annual Energy Outlook 2007*. Historical and Projected Energy Consumption provided by EIA.
26. "... as much as 10 times ..." from Leonard Anderson, Timothy Gardner, Reuters, "New York City Taps Tide for Electricity," 15 February 200; "8 percent" from U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 2003*, 7 September 2004, Table 8.2c.
27. *San Jose Mercury News*, 18 December 2007, "PG&E to invest in wave energy".
28. Union of Concerned Scientists, *Growing Energy on the Farm: Biomass Energy and Agriculture*, downloaded from [www.ucsusa.org/clean\\_energy/renewable\\_energy/page.cfm?pageID=129](http://www.ucsusa.org/clean_energy/renewable_energy/page.cfm?pageID=129), 3 March 2005.
29. Martin Kushler, Dan York and Patti White, American Council for an Energy-Efficient Economy, *Five Years In: An Examination of the First Half-Decade of Public Benefits Energy Efficiency Policies*, April 2004.
30. California Energy Commission, "Comparative Costs of California Central Station Electricity Generation Technologies" Staff Report, June 2007.
31. Nemet, G.F. (2006) "Beyond the Learning Curve: factors influencing cost reductions in photovoltaics," *Energy Policy* 34, 3218–3232.
32. Solarbuzz, *Fast Solar Energy Facts*, downloaded from [www.solarbuzz.com/FastFactsIndustry.htm](http://www.solarbuzz.com/FastFactsIndustry.htm), 8 September 2006.
33. U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, *Building Technologies Program: Passive Solar Design*, downloaded from [www.eere.energy.gov/buildings/info/design/integratedbuilding/passive.html](http://www.eere.energy.gov/buildings/info/design/integratedbuilding/passive.html), 8 September 2006.
34. Schreiber, Benjamin, Environment America Research & Policy Center, "Driving Towards a New Energy Future", November 2007.
35. See note 20.
36. William Prindle, American Council for an Energy-Efficient Economy, *Senate Energy and Natural Resources Committee Natural Gas Conference: Proposed Policy Solutions*, January 2005.
37. The Keystone Center, "Nuclear Power Joint Fact-Finding", June 2007
38. Klein, Alex, "TECO, Nuon Cancellations Underscore IGCC's Woes" Clean Power Generation Advisory, Emerging Energy Research, 5 October 2007.
39. See note 20.
40. Jeff Deyette, Union of Concerned Scientists, personal communication, 23 October 2007. Assumes that all states will achieve their annual renewable energy targets.
41. Dutzik, Tony and Sargent, Rob, *America's Clean Energy Stars: State Actions Leading America to a New Energy Future*, Environment America Research & Policy Center, November 2007.
42. Bezdek, Roger, *Renewable Energy and Energy Efficiency: Economic Drivers for the 21st Century*, American Solar Energy Society, November 2007.
43. Sterzinger, George and Stevens, Jerry, "Component Manufacturing: Massachusetts Future in the Renewable Energy Industry" Renewable Energy Policy Project, August 2007.
44. Union of Concerned Scientists, *Renewing America's Economy*, September 2004.
45. U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, *Wind Energy for Rural Economic Development*, revised August 2004.
46. CBS News/New York Times Poll. April

20-24, 2007. N=1,052 adults nationwide.

47. Zogby/American Wind Energy Association, November 2008.

48. See note 46.

49. Ibid.

50. Ibid.

51. Ibid.

52. Ibid.

53. Ibid.

54. National Renewable Energy Laboratory, "A Preliminary Examination of the Supply and Demand Balance for Renewable Electricity", October 2007.

55. National Renewable Energy Laboratory, "NREL Highlights Leading Utility Green Power Programs" 3 April 2007.

56. See note 46.



Environment Arizona  
Environment California  
Environment Colorado  
Environment Connecticut  
Environment Florida  
Environment Georgia  
Environment Illinois  
Environment Iowa  
Environment Maine  
Environment Maryland  
Environment Massachusetts  
Environment Michigan  
Environment New Hampshire  
Environment New Jersey  
Environment New Mexico  
Environment North Carolina  
Environment Ohio  
Environment Oregon  
PennEnvironment  
Environment Rhode Island  
Environment Texas  
Environment Washington  
Wisconsin Environment

Federal Office:  
218 D St. SE  
Washington, DC 20003

44 Winter St., 4th floor  
Boston, MA 02108

1536 Wynkoop St. Suite 100  
Denver, CO 80202

3435 Wilshire Blvd., #385  
Los Angeles, CA 90010

[www.environmentamerica.org](http://www.environmentamerica.org)