

**UNITED STATES SENATOR
KEN SALAZAR**



**REPORT ON THE 2006 COLORADO
RENEWABLE ENERGY SUMMIT**

February 16, 2006

The Call for a Renewable Energy Summit

America's energy policy directly impacts our national security, our economy, rural redevelopment and the environment. Today, we have the opportunity to adopt new energy policies that will strengthen our national security, provide a solid base for economic growth and international competitiveness, give a much needed boost to America's farms and rural communities, and reduce the greenhouse gases that are contributing to global climate change.

I hosted the Renewable Energy Summit in Denver on January 11 to hear some of Colorado's and the nation's most important voices on renewable energy, so that we may better understand our energy challenges and learn how to advance the cause of energy independence through renewable energy. In response to my invitation, more than 500 people from the public, energy industries, the investment sector, academia and government agencies and offices gathered at the Community College of Denver for a full day of presentations and discussion on renewable energy.

Presenters included: David Garman, Under Secretary of the U.S. Department of Energy; Dan Arvizu, Director, National Renewable Energy Laboratory; Lee Edwards, President, BP Solar; John Hofmeister, President, Shell Oil Company; Patricia Vincent, President, Xcel Energy's Public Service Company of Colorado; Timothy Wirth, former U.S. Senator from Colorado, President, United Nations Foundation; and leaders in the ethanol, biodiesel, solar, wind and biomass renewable energy industries. A complete list of the presenters and the Summit agenda is attached.

The domestic production of renewable energy is not a partisan agenda. It is not a regional agenda. It is an American agenda. Since the date of the Summit, President Bush has announced his commitment to renewable energy, and I welcome his support for this cornerstone of our energy independence program.

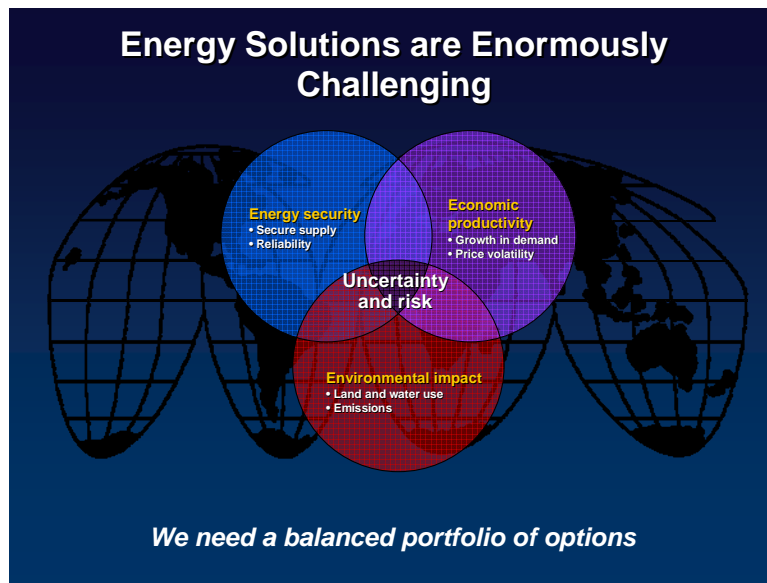
I hope you will join me in creating a new national energy policy that will reduce our dependence on imported oil, strengthen our national security, set our economy on a firm foundation, and give new hope to rural America.

The Challenge

Today, the United States consumes about 25% of the world's oil production, but we have only 3% of the world's oil reserves. We simply cannot drill our way to lower energy prices and energy independence. Regrettably, the absence of a coherent and forward-looking national energy policy over the past few decades has led our country down a dangerous path.

- More than 30 years after the Arab oil embargo of 1973, we are more dependent than ever on imported oil.
- Our reliance on oil imports has doubled in the past three decades, to almost 60 percent of the oil we use, increasing our vulnerability to price spikes and supply disruptions.
- OPEC countries, particularly in the volatile Middle East, control most of the world's oil, with more than two-thirds of the world's proven reserves held by countries like Iraq, Iran and Saudi Arabia. Only 9 percent of the world's oil is found in reliably democratic nations.
- The competition for available oil is increasing, especially from rapidly growing countries like India and China, ensuring continued price pressure. China's oil imports are up 30 percent in recent years, and that country is now the world's second leading oil consumer.

Whether measured in terms of national security or economic stability, America's energy policy is in worse shape today than in 1973. The price of oil is way up, and the stability of our oil supply lines is subject to greater threats.



Presentation of NREL Director, Dan Arvizu, Ph.D.

So what do we do? How do we craft a new national energy policy to lead us to energy independence, a more secure nation, a stronger economy and revitalized rural areas? Our new energy policy must be constructed – like a new home – on a solid foundation, with four cornerstones:

- Promote responsible exploration, production and use of our oil, gas and coal resources;
- Increase energy conservation and efficiency;
- Develop new technologies to generate and manage energy; and
- Embrace and promote renewable energy.

The January 11 Summit addressed the last of these cornerstones: the role of renewable energy in a new American energy policy. I am pleased to present this report of the Summit proceedings.

The National Security Imperative

Senator Wirth set the stage for the discussion of renewable energy by explaining the national security imperative to reduce our dangerous dependence on imported oil. Energy produced here in America, from our own renewable resources, can reduce the amount of oil we currently import (and the amount of natural gas that is currently projected for importation) as our own supplies fall short of our growing demand.

The domestic production of renewable energy and the reduction in imports of oil and natural gas will strengthen our national security in three ways. First, by reducing our imports of oil, we reduce our vulnerability to the political instability in most of the oil producing regions of the world. The world's despots, dictators and terrorists will lose their ability to threaten our economic lifeline. As our national interest in protecting foreign oil fields, pipelines and shipping lanes is diminished, the need for the United States to intervene in foreign disputes is also diminished.

Second, as we reduce imports of oil, we also slow the flow of our own dollars into unstable regimes. Too many of these regimes are directly or indirectly involved in terrorism and anti-democratic movements, and our dollars are being used to prop up these regimes and to fund the very terrorists that threaten our interests.

Third, because energy is the key to economic development in every nation, the development of reliable and cost-effective renewable energy technologies will help alleviate poverty worldwide. When we reduce poverty, we also reduce political instability around the world. Of the world's six billion people, one-third lack any access to modern energy services and another third only have intermittent access. The dependence of poor nations on imported oil drains funds away from needed social investments in education, health and basic infrastructure. The ability of these nations to produce energy from their own agricultural, wind, solar and other renewable resources will support sustainable economic growth and enhance trade opportunities. Economic stability will contribute to the political stability of these nations, and our own national security will benefit.

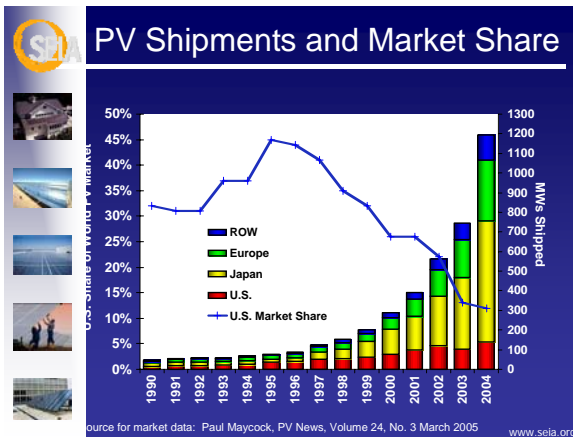
Renewable Energy and America's Economic Competitiveness

Our nation's economy depends on reliable and affordable sources of energy for our homes, our vehicles and our industries, whether manufacturing or high tech. In past decades, we competed only with the industrialized world for our oil needs. Today, we

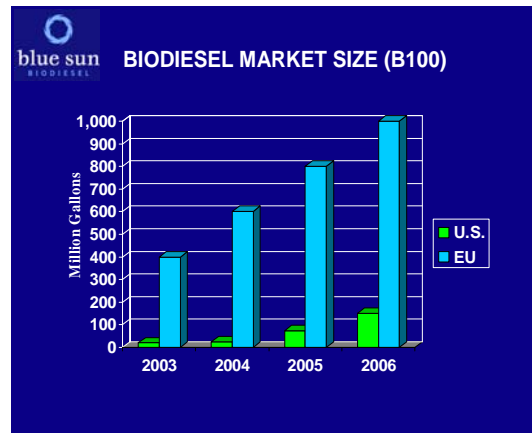
must also compete with the rapidly expanding economies of the developing world, especially China and India, as they search for energy to fuel their explosive development.

In the short term, this intense competition has and will contribute to a rise in oil and natural gas prices. These rising prices burden many sectors of our economy: transportation, manufacturing and agriculture, to name just a few. But, in the longer term, this competition for energy presents both a threat and an opportunity. Those economies that develop dependable, affordable, climate-friendly, and home-grown sources of energy will have an enormous competitive advantage. Ultimately, the development of such renewable energy technologies, shared with all nations, will enable an economic boom that will bring greater prosperity to the entire world.

Although many American researchers and entrepreneurs have been working diligently on renewable energy technologies, our national commitment has been inconsistent. Every time oil prices have peaked since the 1970s, we have heard calls for a concerted effort to develop renewable energy technologies. Unfortunately, as soon as the price of oil dropped, most federal and private funding for these research efforts quickly dwindled. At the same time, other nations have been more diligent in their efforts to develop and implement renewable energy technologies, and we now lag behind in this global competition. Japan and Germany have far surpassed us in the manufacture and installation of solar photovoltaic technology. Europe produces and consumes far more biodiesel than does the United States. Brazil produces more than half of its liquid fuels from plant products, and virtually all of its vehicles are flex-fuel, able to operate on a variety of fuels, including gasoline, ethanol and natural gas.



Presentation of Rhone Resch, S.E.I.A.



Presentation of Jeff Probst, BlueSun Biodiesel

Can the United States reclaim leadership of the renewable fuels industry? We can and we must. Time and again during the Summit, presenters and audience members spoke of the enormous economic opportunities associated with renewable energy technologies. For example, in 2004 alone, the ethanol industry created 147,000 jobs and contributed billions of tax dollars to state and federal governments.

Ethanol Production Has Positive National, State and Local Economic Benefits

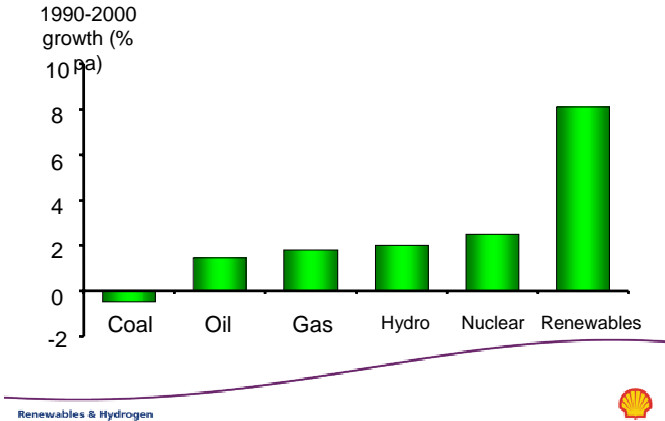
In 2004 the ethanol industry:

- Supported the creation of more than 147,000 jobs.
- Added \$1.3 billion to federal tax revenues.
- Increased tax revenue for local governments by \$1.2 billion.
- Reduced farm program costs by \$3.2 billion due to increased value of commodities.
- Lowered fuel costs for consumers.

Presentation of Patty Stulp, Ethanol Management Company

John Hofmeister, U.S. President of Shell Oil, noted that renewable energy technologies demonstrated much faster growth than traditional energy technologies through the 1990s. In light of this trend, both Shell and BP – two major, international oil companies – have made long term commitments to renewable energy R&D and commercial development.

Faster growth than conventional energy...



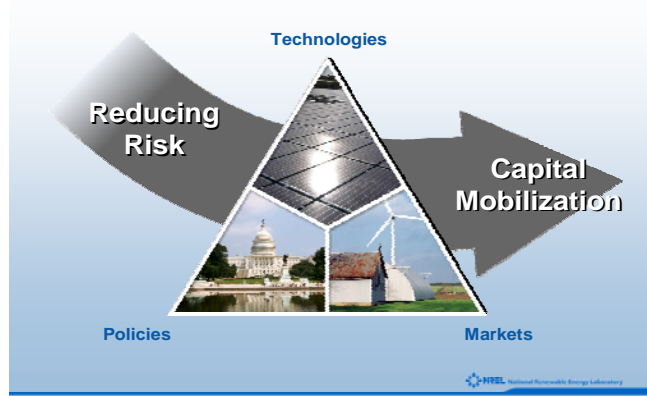
Presentation of John Hofmeister, Shell Oil Company

Each of the renewable energy technologies has the potential to create good paying jobs in America and to keep our energy dollars working here at home instead of overseas. In the long run, a strong renewable energy industry will also create a more reliable source of energy at lower costs. American consumers will save on their energy bills, and America’s manufacturers will remain competitive in the world economy.

As U.S. Department of Energy Under Secretary David Garman described, the success of the renewable energy industry will turn on the interplay of three forces: governmental policies, technology and markets. With the enactment of the Energy Policy Act of 2005, federal policy is now more favorable to renewable energy than ever before, although

much more can and should be done. Public and private researchers are developing better and less expensive technologies, although there are many breakthroughs yet to come.

Increasing Renewables in the Energy Mix



Presentation of D.O.E. Under Secretary David Garman

The market for renewable energy technologies is enormous, but, as Mr. Garman reminded us, ours is still a consumer driven economy. Americans will buy renewable energy and allied technologies in mass quantities only if these products meet the consumer's needs at the same or lower price as competing products. This reality presents one more challenge, and one more opportunity, to America's energy companies, utilities, and manufacturers.

A Boost for Agriculture and Rural America

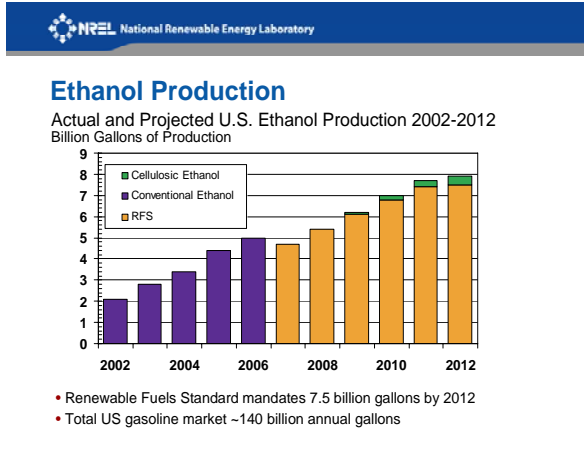
An American energy policy that is dependent on oil – and therefore on imported oil – inflicts enormous pain on the farmers and ranchers of the nation. For some farmers, the cost of diesel fuel for the 2005 season exceeded the value of their crop. The cost of electricity, diesel fuel, natural gas and fertilizer (much of which is derived from natural gas) is driving many farmers and ranchers to the brink of bankruptcy. As goes the fate of America's farmers and ranchers, so goes the fate of many of our rural towns.

In contrast to the dire present picture, a new energy policy that embraces renewable energy will offer a huge boost to our agricultural producers and communities, providing new sources of income and the prospect for more stable energy supplies and prices.

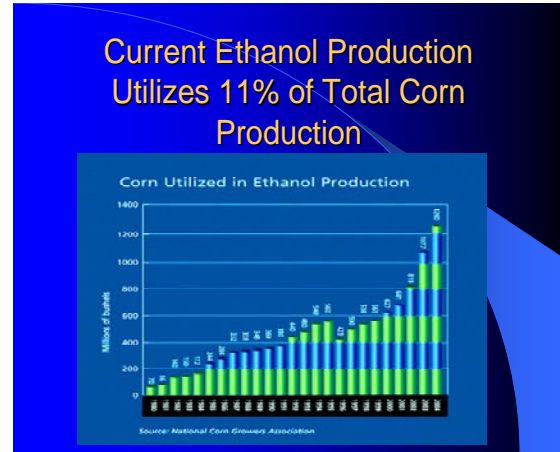
As wind power continues to expand rapidly, farmers, ranchers and small towns can enjoy significant new income, either through direct profits from locally owned wind farms or through royalties received from wind turbines constructed by corporate developers on farms and ranches. As former Speaker Lola Spradley described, wind power projects bring short term construction jobs and new money into rural communities, benefiting local workers, hardware stores, motels and restaurants. In the long term, such wind farms create good paying jobs that mean a lot to a struggling rural community. Finally, the increased tax base from wind turbines supports local schools, road improvements and all

of the responsibilities of local government. Lola Spradley and Mike Bowman identified transmission constraints as the biggest current obstacle to expanding wind power in rural Colorado.

The production of ethanol and biodiesel will also strengthen America's agricultural sector. Ethanol and biodiesel are created from crops like corn, sugar beets, soy and canola. The strong ethanol market has already raised the price of corn for Midwestern farmers. However, the distribution system for both ethanol and biodiesel is limited, and consumers' awareness and understanding of these alternative fuels must be increased.

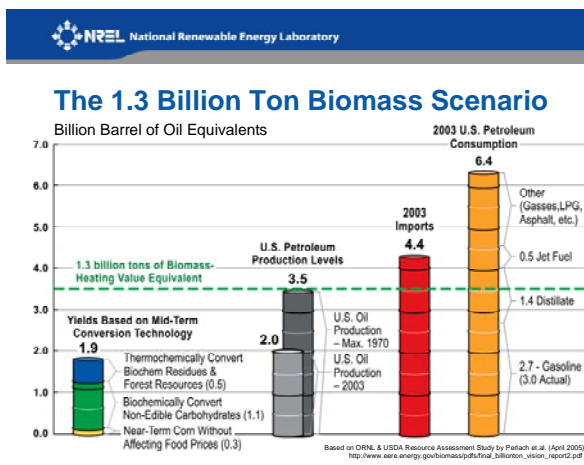


Presentation of Michael Pacheco, NREL

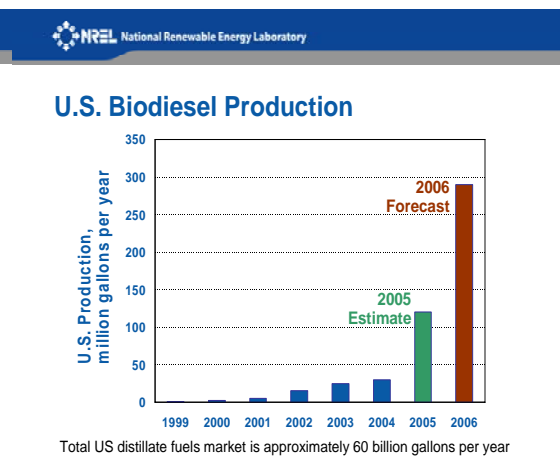


Presentation of Patty Stulp, Ethanol Management Co.

As the technology for cellulosic ethanol advances, farmers and ranchers will also find a market for corn stalks and wheat straw and other agricultural waste products that currently have no value. America already has the capacity to produce the equivalent of 1.3 billion barrels of oil from non-food grains, leaves, stalks and forest products.



Presentation of Michael Pacheco, NREL



Presentation of Michael Pacheco, NREL

Biodiesel will present similar opportunities for American farmers. We produced nearly 150 million gallons of biodiesel in 2005. The forecast for 2006 is for nearly 300 million gallons, a 100% increase in a single year. The growth of biodiesel will create stronger markets for soy, canola and other crops and will present the opportunity for co-ops and locally-owned businesses to build and operate biodiesel refineries.

A coalition of agricultural and energy organizations is promoting “25x25,” the goal that agriculture will provide 25% of the total energy consumed by the United States by the year 2025. Mike Bowman, a member of the 25x25 steering committee, explained that America’s farms and ranches can produce this much energy while continuing to produce abundant and affordable food.

Renewable energy will be a pivotal factor in the future success of America’s agricultural industries and our rural communities, even as it leads us to energy independence.

Cleaning the Air, Protecting the World’s Climate

According to Shell’s John Hofmeister, climate change is one of the main drivers for developing renewable energy. We are in the midst of a vast, though unintended, experiment on the world’s climate, and our efforts to embrace renewable energy may also serve to reduce the forces producing climate change. With research and development available in many renewable energy sectors, we now have better tools and a greater opportunity to protect the world’s climate from further harm.

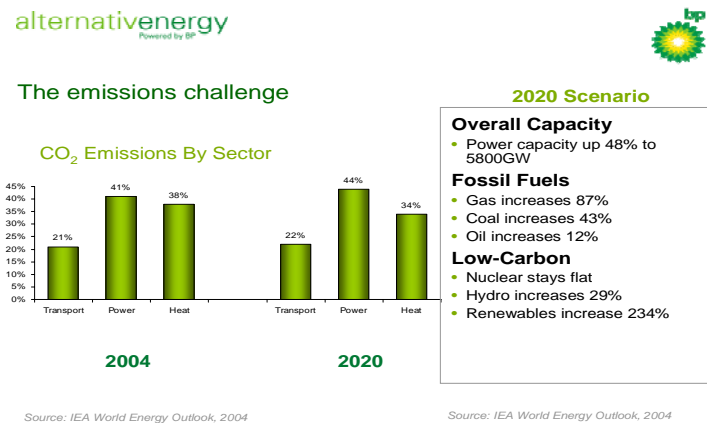
Many renewable sources result in little or no negative environmental impact. Wind generated power is rapidly expanding, producing electrical power at a competitive and predictable price, without emitting any air pollutants. As our ability to predict the wind improves, and as we perfect our ability to integrate intermittent wind power into our electrical grid, wind power will play a larger role in our national energy portfolio, with benefits to both American consumers and to our environment.

Solar is also a very clean form of energy, with an endless supply. So far, the United States has been slow to capitalize on the potential of the solar energy sector. While Germany has about 80,000 solar water heating installations per year and China has 250,000, the U.S. reports only about 6,000. Because solar water heating installations decrease home natural gas use by up to 70%, the lost opportunity is substantial. America is also lagging far behind other nations in the installation of photovoltaics and other solar technologies that could reduce the need for inefficient natural gas or diesel generating units to produce electricity during peak demand periods. As the cost of solar power technologies continues to drop, the use of solar energy will certainly increase. In the long run, solar has the potential to significantly reduce the cost of energy, even as it reduces our release of global warming greenhouse gases into our atmosphere.

Biofuels also reduce the release of carbon dioxide. When we burn fossil fuels, we release carbon that has long been bound up in the earth’s minerals, effectively adding new carbon to the atmosphere. When we use crops and plant material to produce ethanol and biodiesel, we are releasing carbon that will be re-captured by next year’s crops, effectively reusing the same carbon in a continuous cycle. Both biodiesel and ethanol

will help reduce our demand for imported oil while also reducing greenhouse gas emissions and other pollutants.

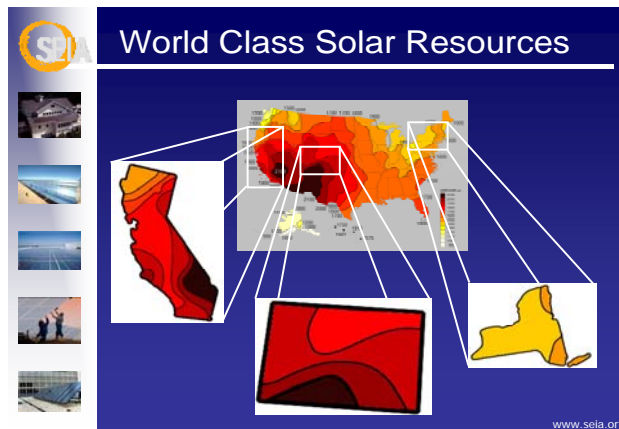
Lee Edwards, of BP Solar, and John Hofmeister, of Shell, emphasized that the United States must act to reduce carbon emissions. With future research and development, carbon sequestration and clean hydrocarbons may also be part of the solution to fight climate change. The challenge is great: we must reduce carbon emissions even as we satisfy an ever-growing demand for energy. To do so, we must explore a broad range of potential energy alternatives, fully fund the necessary research and development efforts, and regain our position as the world leader in energy policy and technology.



Presentation of Lee Edwards, BP Solar

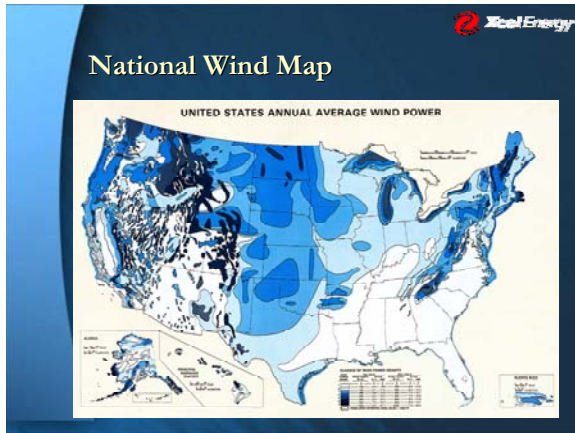
Colorado's Special Role

Colorado is uniquely poised to benefit from the opportunities offered by renewable energy. Colorado has plentiful renewable energy resources. Colorado enjoys the fifth strongest solar resources in the nation. The San Luis Valley, in particular, is among the best locations in the nation for solar energy.

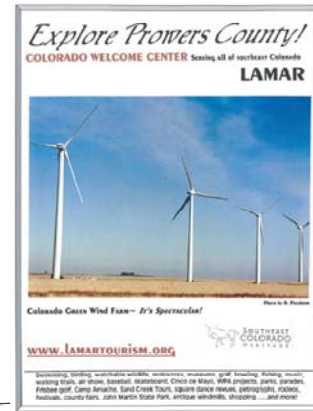


Presentation of Rhone Resch, S.E.I.A.

Nature's winds also present Colorado with an exciting opportunity. Wind is an abundant, low cost energy resource, and the private sector has begun to recognize Colorado's wind energy prospects. Today, Colorado ranks 9th nationally for wind power generation and, as Pat Vincent explained, Xcel Energy has announced a program to triple its wind power purchases in Colorado by 2007.



Presentation of Patricia Vincent, Xcel Energy

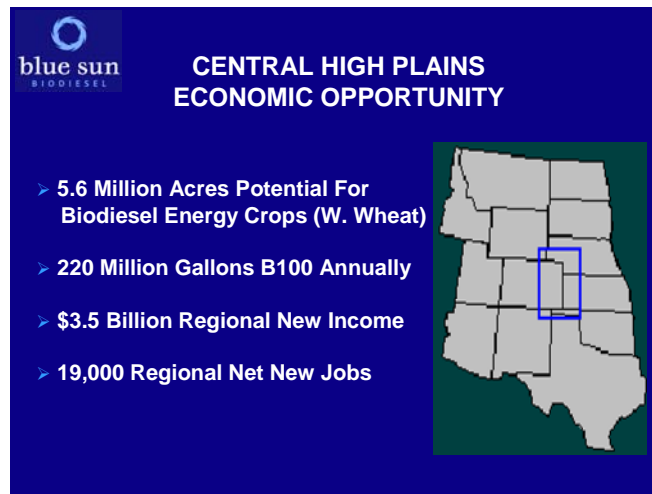


Renewables & Hydrogen

Presentation of John Hofmeister, Shell Oil Co.



Colorado also has the potential to become a leading producer of biofuels. One major ethanol refinery came on line in Colorado in 2005, and another will open in 2006. By 2016, Colorado's share of the biodiesel market could be 220 million gallons, or 22% of the nation's total biodiesel production. As Jeff Probst explained, Colorado's climate and soils produce seed crops with high oil content, perfect for biodiesel. In the central high plains region of Colorado and our neighboring states, more than 5.6 million acres could be developed for biodiesel feedstock production, creating 19,000 new jobs.



Presentation of Jeff Probst, BlueSun Biodiesel

As a result of this boom in renewable energy production, our farms, ranches and rural communities will flourish. New income will flow into long-struggling communities from the production of the crops that will generate ethanol and biodiesel and from the

ownership of wind turbines, biofuel refineries and other renewable energy facilities. The farms and ranches that were often the last to enjoy the benefits of electricity a generation ago will now provide the electricity and liquid fuels that power the nation.

Renewable Energy: A Potential Engine for Economic Growth in Colorado

- Plentiful resources
- NREL and university R&D centers
- Targeted industry for economic development



NREL National Renewable Energy Laboratory

Presentation of NREL Director, Dan Arvizu, Ph.D.

Perhaps Colorado's greatest renewable energy resource of all is the National Renewable Energy Laboratory (NREL), located in Golden, Colorado. Through NREL, Colorado is home to some of the world's finest energy researchers, and, as a result, we enjoy access to cutting edge renewable energy research and tomorrow's technologies. We are also home to three world class public research universities: the University of Colorado, Colorado State University and the Colorado School of Mines. Each of these fine institutions is already conducting advanced research in renewable energy, and each has the potential to do more and even greater work.

Our Colorado community also includes many private enterprises engaged in R&D and the commercial application of new technologies to create renewable energy products for the American and world markets in solar, biofuels, hydrogen and other technologies. Given our remarkable human resources – this dynamic trio of NREL, our research universities and our private entrepreneurs – and our abundant natural resources, Colorado can become the national leader in renewable energy.

To achieve this goal, we must develop governmental policies, both federal and state, to complement and empower our natural and human resources. With the passage of Amendment 37 in 2004, Colorado took an important step in the right direction, giving a big boost to the development of wind and solar power and biomass energy. Through Amendment 37, the people of Colorado made clear their desire to advance the vision of renewable energy. Now, it is time for Colorado's elected officials to respond.

Ken Salazar

RECOMMENDATIONS OF SUMMIT PRESENTERS AND ATTENDEES

The following are summaries of the ideas for expanding renewable energy offered by Summit presenters and attendees for consideration by federal and state policymakers.

General Proposals

- Restore and increase National Renewable Energy Laboratory (NREL) funding
- Extend existing production tax credits for solar, wind, ethanol and biodiesel to provide consistency and dependability for manufacturers and purchasers
- Leverage NREL research resources and reputation to build Colorado renewable energy industries
- Adopt a national renewable energy goal, such as 25x25 or 20% by 2020
- Our federal, state and local governments should lead by example, using energy from renewable sources to power public buildings and vehicles

Agriculture and Energy

- Transition farmlands now fallow under Conservation Reserve Program to energy crop production with federal incentives – instead of paying farmers not to produce crops, pay farmers to produce energy crops
- Provide risk management programs for farmers switching to renewable energy crops

Biodiesel

- Increase R&D funding to identify or create improved biodiesel feedstock crops for more and better fuel
- Update EPA's fuel definition to include "bio-diesel" to reduce testing requirements and expense for new biodiesel producers
- Expand number of biodiesel pumps in Colorado and the nation
- Adopt a B2 national standard (all diesel sold must contain 2% biodiesel)

Biomass

- Continue R&D to achieve lower cost for fuels from lignocellulosic biomass
- Explore new feed stocks for biofuels, including algae

Carbon Dioxide and Greenhouse Gases

- Create a federal cap and trade program for carbon dioxide and greenhouse gas emissions
- Authorize and fund a federal program to determine the value and safety of geological carbon sequestration

Electrical Power

- Improve our energy infrastructure – production, distribution and utilization – especially our electrical power grids
- Optimize our electrical transmission system by using locally generated electricity first
- Improve our transmission system, including the timely building of greater capacity in regions with good wind power resources
- Require net metering
- Ensure supportive tax policy
 - Establish additional renewable production/development incentives
 - Provide stability for production and investment tax credits
 - Encourage tax benefits and accelerated depreciation for new technologies
- Establish a nationwide system to trade renewable energy credits
- Streamline siting authority
- Increase renewable purchasing opportunities
- Develop markets for locally owned projects
- Ensure timely cost recovery for utility investments
- Change statutory requirements and offer incentives so that utility companies and Rural Electric Associations can buy and produce more electricity from renewable resources

Ethanol

- Ensure that the rulemaking proceedings under the Energy Policy Act of 2005 are expeditious and transparent
- Expand number of E85 fuel pumps in Colorado and the nation
- Maintain and expand federal ethanol goals

Hydrogen

- Continue and expand research and development regarding hydrogen production, storage and usage

Solar

- Fully fund current authorizations for solar research and development and increase future funding
- Create consistent rules and standards
- Remove market barriers by using consistent interconnection standards and net metering
- Consider raising the solar requirement in Colorado's Renewable Portfolio Standard – make Colorado a leader in solar power
- Facilitate concentrating solar power development in the San Luis Valley – best solar energy resource in Colorado

State Renewable Energy Incentives

- Offer a state ethanol/biodiesel tax credit for Colorado producers for five years
- Offer a state tax credit for owners/investors in Colorado cellulosic ethanol plants
- Offer state tax credits to encourage the production of clean electric power from wind, closed-loop biomass, open-loop biomass, geothermal, irrigation power, landfill gas, and trash combustion
- Offer state tax credits per ton of biomass and forest thinnings used for clean technology energy production or transportation fuels
- Offer state tax credits to encourage the construction of energy-efficient offices and homes, the purchase of energy efficient heating and cooling systems and appliances
- Offer a state tax deduction for the installation of energy efficient equipment that reduces the energy and power consumption of a commercial building by 50 percent
- Offer a state tax credit for investments in alternative fuel refueling stations

Transportation Technology

- Increase fuel efficiency of vehicles
- Increase manufacture and use of flex-fuel vehicles

Wind

- Authorize and support community-scale wind power
- Use our federal hydroelectric resources as a “firming” source to support wind development
- Consider use of non-peak wind power to produce and store hydrogen
- Consider amending the Pole Attachment Act to facilitate transmission of wind power
- Rethink regulatory rate of return to encourage utility investment in renewables
- Increase the targets of Colorado’s renewable portfolio standard
- Expand programs like Xcel’s “Wind Source” to offer consumers the option of buying and supporting wind power

Renewable Energy Summit Program

- 9:00 a.m. – 9:20 a.m. **Introduction of Colorado Governor Bill Owens** (*personal matter; unable to attend*)
Introduction of United States Senator Ken Salazar
— *Christine Johnson, Ph.D., President, Community College of Denver*
- Welcome** — *United States Senator Ken Salazar*
- 9:20 a.m. – 10:00 a.m. **The National Security Imperative and Economic Opportunities for the United States**
— *Timothy Wirth, President, United Nations Foundation and Better World Fund and Former United States Senator*
- 9:45 a.m. **Q&A** — *Senators Salazar and Wirth*
- 10:00 a.m. – 12:30 p.m. **Colorado Renewable Energy Sectors: Present and Future**
Overview — *Lola Spradley, former Speaker, Colorado House of Representatives*
Ethanol — *Patty Stulp, President, Ethanol Management Company*
Biodiesel — *Jeff Probst, Chief Executive Officer, Blue Sun Biodiesel*
Solar — *Rhone Resch, President, Solar Energy Industries Association*
Wind — *Mike Bowman, Member, Board of Directors, 25x25*
Biomass — *Michael Pacheco, Director, National Bioenergy Center, NREL*
- 12 noon **Q&A** — *Colorado panel members*
- 1:30 p.m. – 2:30 p.m. **The Place of Colorado and the U.S. in the Global Renewable Energy Economy**
— *David K. Garman, Under Secretary of Energy, U.S. Department of Energy*
— *Dan Arvizu, Ph.D., Director, National Renewable Energy Laboratory*
- 2:15 p.m. **Q&A** — *Under Secretary Garman and Dr. Arvizu*
- 2:45 p.m. – 4:15 p.m. **How Leading Corporations Are Embracing Renewable Energy**
— *Lee Edwards, President and Chief Executive Officer, BP Solar*
— *John Hofmeister, President, Shell Oil*
— *Patricia Vincent, President and Chief Executive Officer, Public Service Company of Colorado, XCEL Energy*
- 3:45 p.m. **Q&A** — *CEO Panel and Senator Salazar*
- 4:15 p.m. – 4:30 p.m. **Next Steps for Colorado's Renewable Energy Future** — *Senator Salazar*