Policy Statement

Natural Gas

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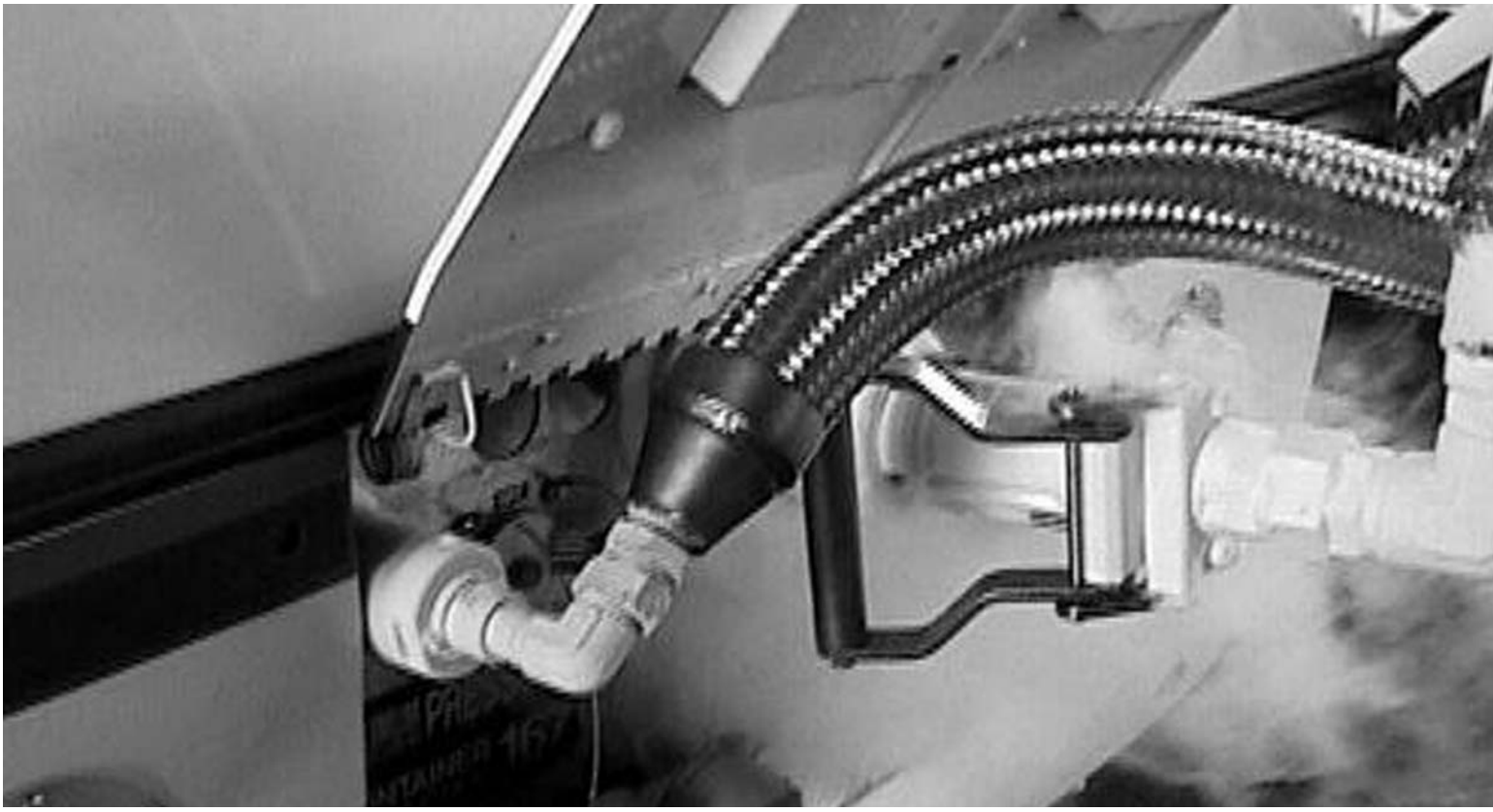
Policy Statement *on* Natural Gas

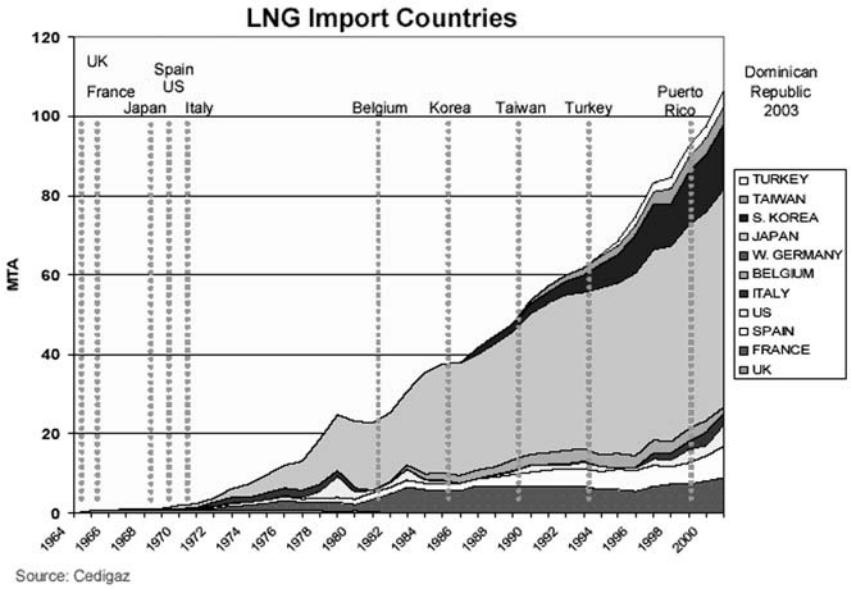
The Chairman of the Federal Reserve Board, Alan Greenspan, has recently brought attention to the nation's growing natural gas problem. In effect he has stated that there is a crisis brewing in this country due to a growing demand for and a lessening domestic supply of this widely used fuel. His solution is for the U.S. to expand its capacity to import more natural gas from foreign sources. Others have advocated mining more natural gas from protected government lands in the U.S.

The American Solar Energy Society recommends an entirely different approach. Our analysis shows that the best and least expensive solution to our natural gas problem is to reduce demand rather than increase supply. We recommend doing this by taking positive energy efficiency measures to reduce consumption and utilizing renewable energy derived fuels and technologies to alleviate demand. The following pages detail the findings of our analysis and specific remedies to best confront the growing crisis.



NREL/DART

LNG fuel hoses attached to bus. This docking station stores the LNG nozzles when not in use and serves as pre-cool circuit for the station.. The liquid fill nozzle supplies 50 gpm.



In studying the historical LNG demand, it's easy to see the significance LNG imports will have in meeting the growing North American demand.

Overview/Summary

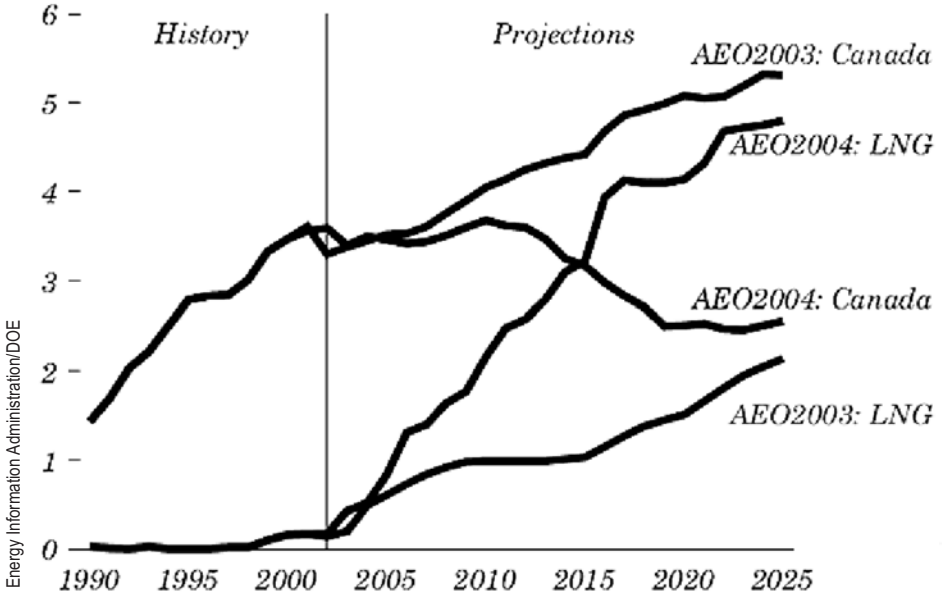
The Chairman of the Federal Reserve Board, Alan Greenspan, has recently brought attention to the nation's growing natural gas problem. In testimony before Congress and in public statements on the health of the economy, Greenspan pointed to rising prices and diminishing supplies as the major culprits. According to the Fed Chairman:[1]

> Today's tight natural gas markets have been a long time in coming, and futures prices suggest that we are not apt to return to earlier periods of relative abundance and low prices anytime soon. It was little more than a half-century ago that drillers seeking valuable crude oil bemoaned the discovery of natural gas. Given the lack of adequate transportation, wells had to be capped or the gas flared. As the economy expanded after World War II, the development of a vast interstate transmission system facilitated widespread consumption of natural gas in our homes and business establishments. On a heat-equivalent basis, natural gas consumption by 1970 had risen to three-fourths of that of oil. But natural gas consumption lagged in the following decade because of competitive incursions from coal and nuclear power. Since 1985, natural gas has gradually increased its share of total energy use and is projected by the Energy Information Administration to gain share over the next quarter century, owing to its status as a clean-burning fuel.

The Energy Information Administration predicts that natural gas consumption will increase by 52 percent between now and 2025 to 35 trillion cubic feet. The problem is that U.S. production in 2025 will produce a deficit.

Chairman Greenspan's solution to the problem has been to encourage Congressional leaders to invest in additional LNG (liquid natural gas) facilities at major ports, so that the nation may import what it cannot produce. Greenspan's characterization of the growing natural gas problem comes at a time when geo-political and economic events are causing the nation's attention to be focused on continued reliance upon fossil and nuclear energy sources.

The occurrence of events such as the war on terrorism, labor unrest in Venezuela, mounting evidence of environmental damage from the use of fossil fuels, fallout from utility sector restructuring, wars in Afghanistan and Iraq, the demise of Enron, slowed economic growth, unstable petroleum prices, a lack of storage space for nuclear waste, proposals for opening protected federal lands to energy resource exploration and extraction and Administration and Congressional support for hydrogen as the future's preferred energy option has served to increase interest



U.S. net imports of LNG and Canadian natural gas, 1990 – 2025 (trillion cubic feet)
Annual energy outlook 2004 with projections to 2025

in the national energy policy.

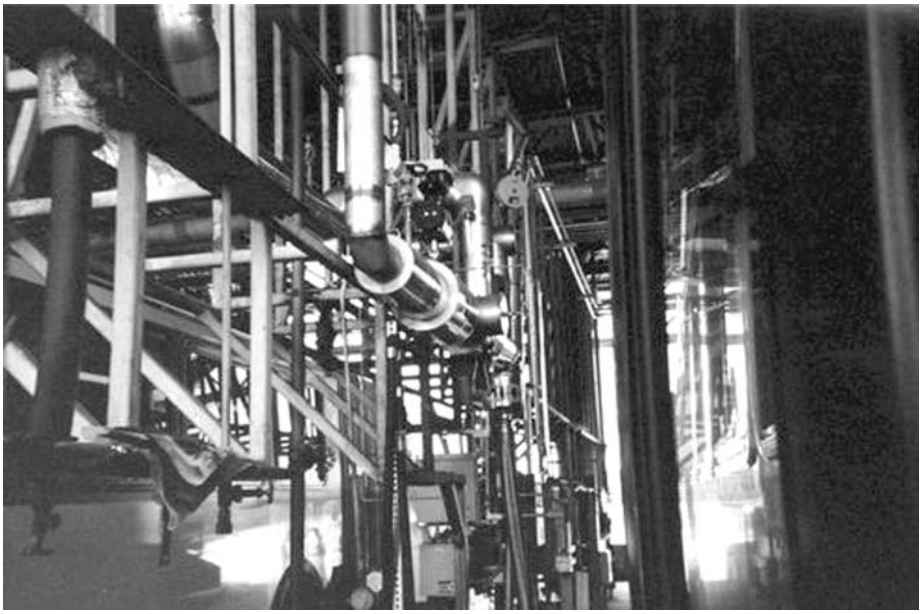
Like many of today's political leaders, Greenspan sees the cornerstones of the energy problem as availability and price. Accordingly, solutions seem limited to increasing domestic production and importing additional petroleum and natural gas supplies. Although investment in new LNG facilities and tankers, as well as extraction of gas and petroleum supplies from environmentally sensitive areas, could contribute additional supplies in the mid-term, the American Solar Energy Society believes these solutions do nothing to solve near-term problems and, in the long-term, serve only to increase the vulnerability of the nation.

The nation is once again standing at an historic junction. The choices it makes today have a profound impact on health and security tomorrow. The choice that must be made is less about a specific path and more about a general direction.

Choices must be made today because energy production and delivery systems need long lead times to be developed and deployed. The high cost of energy infrastructure, power lines, fueling stations and pipelines for instance, means that change is both expensive and resisted. For LNG a vertically integrated company such as Sempra Energy, could spend $1 billion on a liquefying plant, $200 million apiece for the tankers to carry it and $300 – $500 million for an import terminal where it will be stored and later re-gasified.[2] Once made, these investments are not easily abandoned.

Even should the perfect energy source be discovered tomorrow, it would take decades for the current infrastructure to embrace and incorporate it. This is very much the case with sustainable energy technologies like energy efficiency, wind, solar and biomass. It is also the case with any known or contemplated energy source. Nuclear power plants require a lot of time and money to construct. Pipelines and port facilities do not spring up spontaneously.

Nowhere is the issue of infrastructure more apparent than in the current debates about hydrogen. Although plentiful and in a form that can be accommodated with relatively few infrastructure changes—internal combustion engines can burn hydrogen and gas stations easily modified to dispense it—the nation is decades away from becoming a hydrogen economy.



NREL/Kevin Chandler

LNG fuel lines inside fueling bay., Dallas Area Rapid Transit (DART)

It is important that the direction chosen not defeat—in fact or in consequence—the possibility of meeting the nation's energy needs with a multiplicity of resources. The direction taken should encourage on-going research and development of new and improved technologies. Both as matters of science and politics, exclusionary choices such as synthetic fuels, have proven problematic in the past.

ASES believes that Mr. Greenspan's proposal to expand investment in LNG transport and delivery systems—like the proposals of those believing it possible to produce the nation's way out of its petroleum problems by drilling on environmentally sensitive federal lands—will take the nation in the wrong direction. For ASES, making it possible to become dependent upon foreign LNG—as opposed to foreign petroleum—is simply swapping addictions. Although natural gas may be cleaner than petroleum, its finite nature and the need for foreign supplies lead to the same vulnerability the nation now confronts with oil. Mr. Greenspan's proposals increase energy imports and do nothing to lead the nation towards the energy independence that most believe prudent in light of recent events.

The answer to today's natural gas problem and the problems of petroleum and nuclear technologies is expediting the development and use of domestically available sustainable energy sources, including energy efficiency. As discussed below, the technologies needed for meeting significantly greater portions of the nation's energy demands are available today.

NREL/richard Parish

In 1994, SunLine converted its entire bus fleet to run on CNG. Today, the fleet boasts 46 CNG, one hydrogen fuel cell, two hythane (80% CNG, 20% hydrogen), and three battery-electric buses, with more advanced vehicles on the way. In 2000, SunLine opened the first hydrogen generation, fueling, storage, and education facility ever built by a public transit agency. Hydrogen is produced at the site using solar-powered electrolysis and natural gas reforming.

Although currently more expensive than conventional energy sources like natural gas, sustainable energy technologies are reliable and adaptable to a myriad of situations from central power station generation to small distributed systems. Most importantly, using domestically available sustainable energy sources to respond to the natural gas crisis ***does not*** commit the United States to a dependency on energy sources outside its control, finite in nature or harmful to everyone's health. Technology alone cannot solve the problem. Realizing the benefits of these technologies requires public policies that encourage and promote their use.

In this policy document ASES presents an overview of both the sustainable energy technologies that can be employed today to offset demand for natural gas and the public policies needed to benefit from their potential within a timeframe comparable to that required to build the pipeline, port and conversion facilities needed to import LNG.

The U.S. does not lack technological answers to the problems posed by fossil and nuclear fuels; it lacks the political will to take the nation in a direction that maximizes the contribution of non- traditional energy sources like solar, wind and biomass. Working together, the public and private sectors can solve the nation's energy problems without repeating the mistakes of the past.

Energy Efficiency: A First Line Response

Increased efficiency must be the cornerstone of any national energy strategy. The fact is that the same standard of living is possible using a lot less energy. According to the American Council for an Energy Efficient Economy (ACEEE) the energy currently saved by efficiency measures is equal to 25 percent of energy use. Monetized that amount equals $400 billion annually.

ACEEE estimates that residential conservation energy measures based on today's known and proven technologies could alone reduce the nation's annual natural gas consumption by 1072 (Bcf). Using the estimate of a natural gas shortage of between 3 to 4 billion cubic fee (bcf) per day, that amounts to between 268 and 358 days of shortage that could be avoided through increased efficiency.

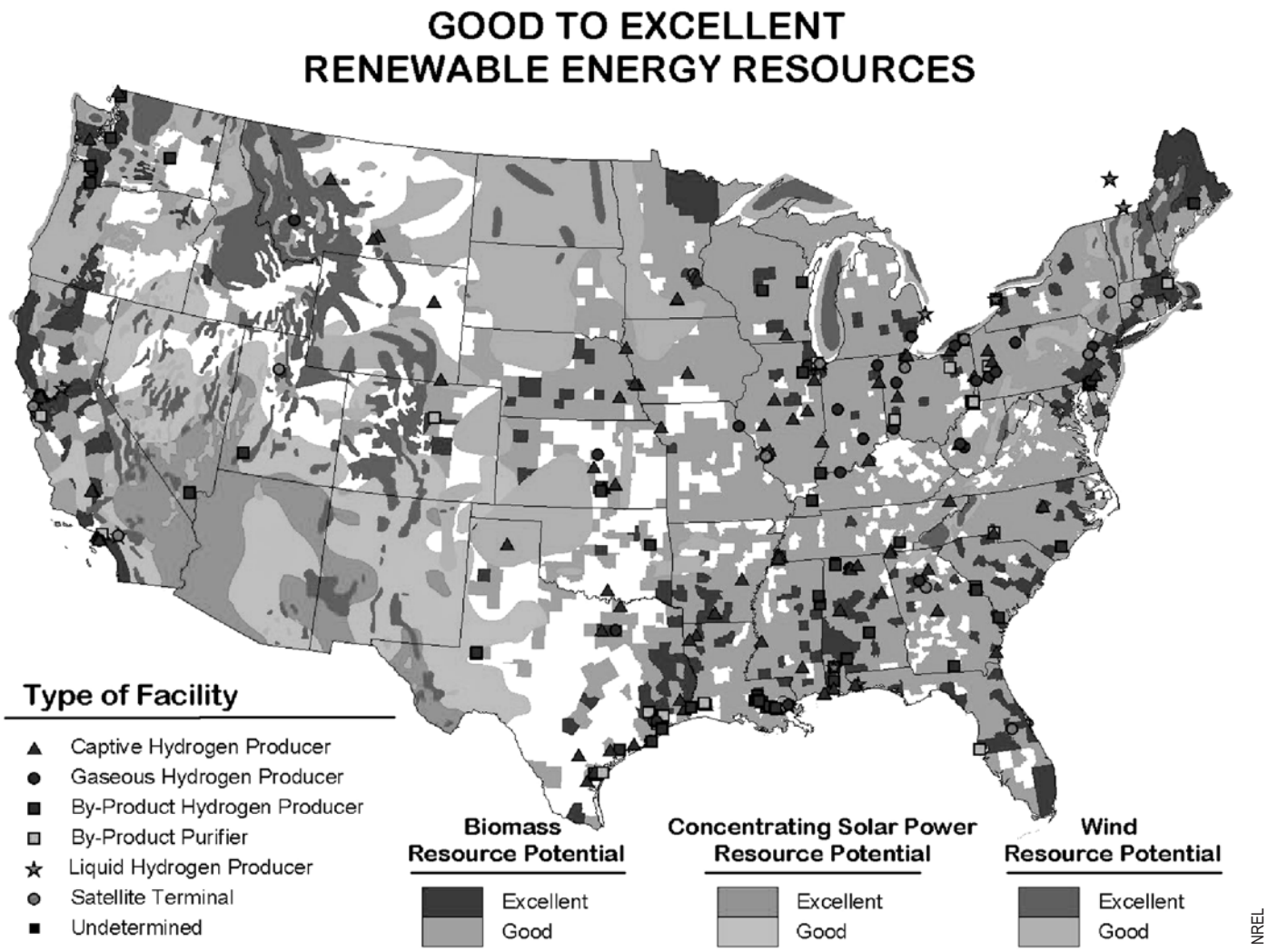
Natural Gas Efficiency Potential
Residential

Measures	Savings (Bcf)
Duct/Air Sealing	310
Windows	233
New Homes	178
Furnaces/Boilers	162
Combo Heat W/H	85
Appliances	53
Water Heaters	52
Totals	**1072**

Although impressive at 25 percent, the nation could easily reduce its energy consumption by a lot more. The easiest opportunities involve the shut-off of idle equipment and the proper sequencing of equipment start-up. Leaks in steam and compressed air systems drain operating budgets while boosting unnecessary demand for fuel and power. The majority of low-cost improvements have a financial payback of two years or less.

The Alliance to Save Energy cites three specific areas of industrial energy use[3] that in total offer a 10 percent savings opportunity. Other than increasing efficiencies and profits, none of these suggestions would change operations.

• *Powerhouse fuel consumption and purchased steam.* Steam, either produced on-site or purchased, plus power generated onsite, represent almost half of industrial fuel con-



sumption. Improvement opportunities include combustion, distribution, heat recovery, and changes in plant operating practices. Current consumption: 8.3 quads; savings potential: 1.0 quad.

• *Fuel direct to processes and building.* Fuels sent directly to process activities and building climate control add up to over one-third of industry consumption. Savings can be found in combustion, heat recovery, insulation, and operating practices. Current consumption: 6.7 quads; savings potential: 0.5 quad.

• *Purchased electricity.* Almost two-thirds of electricity is devoted to motor-driven systems, with the balance going to such things as lighting, controls, and computers. Motor systems offer a 15 percent reduction opportunity. Current consumption: 2.9 quads; savings potential: 0.4 quad.

Industrial and residential energy efficiency measures are not the only steps that should be taken in the near-term to reduce the nation's fossil fuel demands. Increasing the efficiency of the nation's cars and trucks is also imperative in the near-term to reduce both pollution and reliance upon foreign fuel sources.

Domestically Available Renewable Energy Sources

The nation has ample supplies of domestically available renewable energy sources. Although currently more expensive in terms of market price than fossil and nuclear fuels, the cost to society of sustainable supplies is ultimately much less. Whether or not exact costs are known, it is fair to conclude that reliance on fossil and nuclear energy sources will cost the nation in terms of health, safety and the environment.

The market price of the various renewable energy technologies has

been steadily decreasing. Able to benefit from economies of scale and a virtually limitless supply, the greater the demand for these technologies the lower their price will be. Quite the opposite of what is occurring to the price of an increasingly scarce domestic supply of natural gas.

"Renewable energy" is a remarkably diverse group of technologies that together can meet the nation's energy demands within the next two decades. Renewable energy systems are also characterized by their ability to contribute power through both centralized and decentralized delivery systems. Recent electrical blackouts in the eastern U.S. and throughout Italy reflect the weakness in centralized electric grids. Centralized electric grids are open both to congestion and attack. Decentralizing the nation's power grid is a more economic and secure method for preventing disruptions in the future. Decentralization prevents a single incident from affecting tens of millions of people.

It is important to understand also that the finite nature of natural gas requires the nation to consider carefully how it wishes to use its supplies. A strong argument can be made for not using natural gas for generating electricity or for powering homes and automobiles. **The highest value of natural gas is not as an energy source, but as a chemical feedstock**.

The rising use of natural gas for energy purposes is being driven by environmental considerations—not by energy requirements. The use of renewable energy technologies would free up supplies of natural gas, while at the same time meeting national energy demand and environmental regulations. The price volatility of natural gas impacts multiple industries and leads to higher prices for power and other products such as fertilizer and medicines. Releasing the pricing pressure on natural gas—and related products—can come about by substituting its use with domestically available renewable energy sources.

Below is a list of sustainable energy technologies that are available today to replace natural gas—as well as other fossil and nuclear fuels—as an energy source. The road to energy independence can only be paved by renewable energy sources. Investments in LNG delivery systems, more rapid depletion of finite resources and military actions do not solve the nation's energy problems. Investments in domestic renewable energy sources—including efficiency—do!

As shown on the map on page 6, every community in the U.S. has at least one readily available renewable energy resource that could be developed to reduce reliance on natural gas. Many locales have more than one.

NREL/William Martin

Since this natural-gas -engine-driven air compressor at the Watervliet Arsenal replaced the electric-motor driven units, significant energy savings have been realized.

Wind Energy

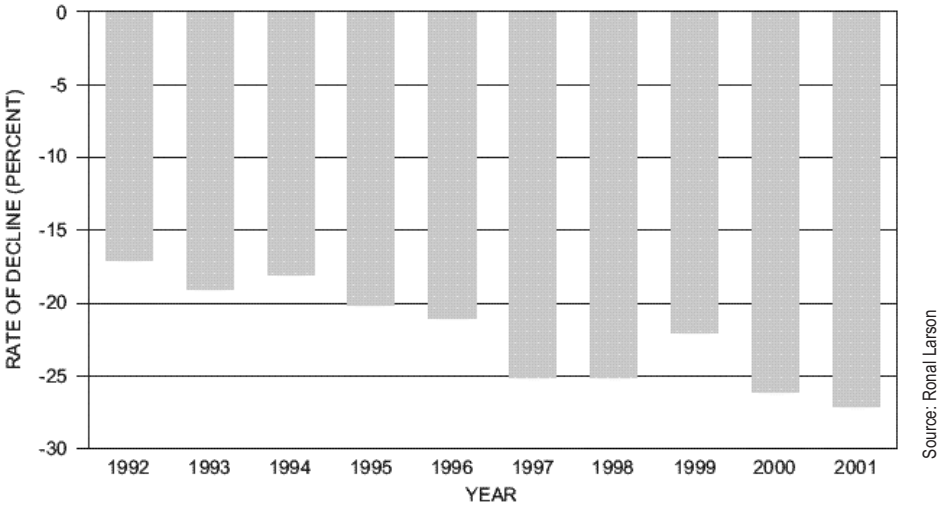
Wind technology is expected to experience the largest growth of any renewable technology over the next 10 years. Wind energy is already helping to reduce the current natural gas supply shortage in the U.S., and could be deployed rapidly over the next few years to bring it under control, according to the American Wind Energy Association (AWEA).

The increasing use of gas for electricity generation is one of the major causes of the shortfall. Wind is proving itself a reliable and increasingly cost competitive source of electric generation.

AWEA estimates that the production of wind farms already in place, added to those that will be in place by the end of this year, can save 0.5 Bcf/day in 2004. They also project that without wind's contribution, the current natural gas shortage would be 10 – 15 percent worse. Expediting the construction of wind farms could significantly improve the nation's energy position vis a vis natural gas within 3 to 5 years—a time period competitive with Mr. Greenspan's estimates of bringing new LNG transportation and

gasification facilities on-line.

Rapid expansion of the nation's wind turbine fleet could sharply boost wind generation over the next four years, increasing its output to the equivalent of 3 Bcf/day—about as much natural gas as the states of Colorado and Alaska produce today. Because wind plants can be permitted and built relatively quickly—typically, within one to two years—wind is able to provide a realistic near-term contribution to meeting the nation's energy requirements.



Lower-48 decline rate from existing wells

Biomass

Next to wind, biomass technology is predicted to have the greatest near to mid-term (1 – 7 years) growth potential. The conversion of biomass to energy—either as electricity or as a liquid fuel such as ethanol, is an established technology. Some of the most common biomass energy sources are wood, landfill gas, animal manure, crop residues and "dedicated" crops, willow trees and switchgrass for instance.

In terms of reducing demand for natural gas, co-firing biomass materials with coal in electric generating plans is particularly promising. Co-firing techniques make it possible to reduce the amount of coal being used for energy generation and the amount of pollution, including greenhouse gases, from coal-fired power plants.

Solar Technologies

Solar energy technology has come a very long way since the 1970s. Today, solar technologies represent a rich and viable array of energy and efficiency options including photovoltaics (PV), concentrating solar power (CSP), solar water heating (SWH), industrial process heat (IPH) and passive solar design. Whether generating electricity, maximizing solar gain and building efficiency through architectural design or heating water, solar technologies have proven reliable and economic in a broad range of settings. The fact that solar technologies can support both centralized and decentralized energy systems means they offer the flexibility needed in the future to minimize the incidence and consequence of electrical blackouts caused by natural disasters, terrorist attacks or congestion in the grid.

It is estimated that one hundred percent of America's current electricity needs could be supplied with solar electric systems built on the estimated 5 million acres of abandoned industrial sites in our nation's cities or the rooftops of buildings already constructed.[4] When combined with a storage system, or in tandem with renewably derived hydrogen fuel, "solar" systems can meet energy demands 24/7.

Hydrogen

Renewable hydrogen is technically viable and available today. In the future it will become increasingly competitive economically, because it can be produced from a diverse array of renewable energy technologies. In some cases, the use of renewable energy such as wind to produce hydrogen is the cheapest form of manufacture. While many improvements are possible, technology is not a major barrier to renewable hydrogen—even in the near term. Any car on the road today can be modified to use hydrogen fuel and, with liquid hydrogen, performance and range are not compromised. (For additional information on the potential of renewably derived hydrogen see ASES' report of the Renewable Hydrogen Forum at www.ases.org)

Geothermal Energy

Geothermal energy currently provides 2200 MW of electric capacity in the western United States, with plants

concentrated in California and Nevada. Geothermal rivals wind power for cost-effectiveness. Costs have dropped approximately a factor of two in the past 15 years, and current levelized costs of electricity are in the range of 4 – 6 cents per kWh. Geothermal power plants operate 24 hours a day. Thus they provide reliable baseload power and do not suffer from dispatchability issues.

The U.S. Geological Survey has estimated that identified hydrothermal (water/steam) resources in the United States could provide 23,000 MW of electricity for 30 years, and undiscovered resources might provide 5 times that amount. The amount of geothermal resource becomes enormous if one exploits the "hot dry rock" that exists in large regions of the American Southwest. Tapping into this resource involves deeper drilling and injection of water to recover heat. A 1990 study by MIT estimated that the nation's highest grade hot dry rock resources could potentially produce 2,875 GW of electricity at an average price below 10 cents per kWh using existing technology. This represents more than 3 times the present U.S. electric capacity.

Positive pricing impacts of increased reliance on sustainable energy technologies

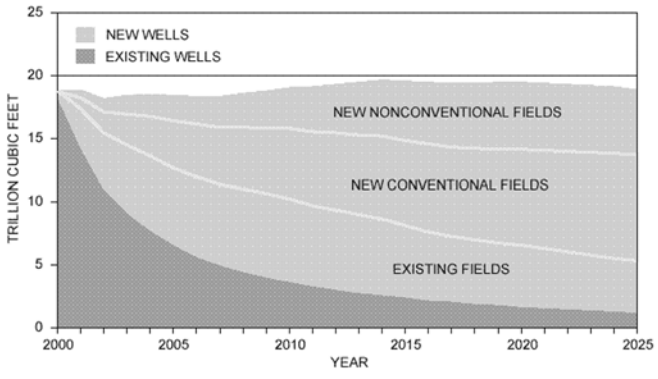
Because of dwindling domestic supplies and increasing domestic demand, upward pressures are being continually placed on natural gas prices. By the same token, sustainable energy technologies and products are just beginning their growth cycles. As a consequence, the price of most will decrease as demand and production increase.[5]

Using renewable energy resources to generate 20 percent of the nation's electricity, for example, could reduce gas use by as much as 11 percent, and lower gas prices by 9 percent, according to studies by the U.S. Energy Information Administration and the Union of Concerned Scientists. Even under low gas price projections, gas savings more than offset the renewable energy technology costs.[6]

Under the suggested scenario of Chairman Greenspan, the price of natural gas is likely to go up as government and industry will be required to invest large sums in the construction of new port, pipeline and liquefaction/gasification facilities. The totality of these investments will not only outstrip the investment required to expedite use of domestic sustainable energy options, but will be passed on to consumers in the form of higher prices. Although increasing available supplies to the U.S., Greenspan's plan neither increases the supply of natural gas nor leads to energy security. Scarcities will perpetuate the pricing problem, while substituting sustainable energy technologies for natural gas supplies diminishes it.

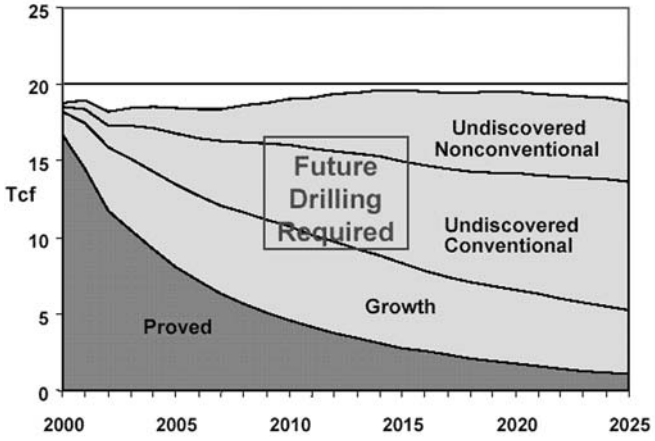
Under the scenarios suggested by ASES and the sustainable energy sector, the nation's available energy supplies are increased. Under those proposed by the Fed Chairman and the Administration, available resources are simply depleted at a faster rate.

Expanding the use of domestically available sustainable energy sources offer policymakers a way to lower the costs of both the problem and the solution. As importantly, expediting the commercial introduction of these technologies into the marketplace would expand the nation's available energy supplies, without creating a dependency upon energy sources under the control of others. It is perplexing, therefore, that such a sustainable energy strategy has not been embraced by Congressional and Administration leaders.



Source: Ronal Larson

Lower-48 gas production, existing and future wells



Gas production by resource category

Technology alone is not the answer: Enlightened public policy is also needed.

Having the needed technology and using it are two different matters. Just as the government has and is investing in the discovery and extraction of fossil energy sources and the production and storage of nuclear fuel, so too it must support expansion of the commercial market for emerging sustainable energy technologies.

It is important to note that ASES recognizes the contributions that have been and are being made currently by federal and state governments. The difficulty is that the individual actions of governments have been neither great enough nor integrated enough to respond to the current natural gas crisis—nor to those being fostered by increased reliance on petroleum. Individual state actions are to be praised, but the crisis before the nation is national in scope and the response must be as well.

To continue to believe that the price of diminishing resources will not go up significantly overtime is simply unrealistic. Giving up all that it can, Earth's petroleum and natural gas supplies are not likely enough to meet the demands—energy as well as petrochemical—of the next several generations. To keep consumer prices the same, the federal government is going to have to resign itself to continually increasing the subsidies for fossil and nuclear fuels. With the current cost of fossil and nuclear subsidies between $4 billion and $6 billion, it is likely that the price of reliance will begin to take a toll on economic growth by 2010.

ASES believes that the nation can control its own energy destiny, even if it is unable to control petroleum and natural gas supplies, by enacting a national energy policy recognizing and acting on the need to expedite the introduction of domestic sustainable energy into the marketplace.

By comparison to the billions of dollars spent on fossil fuel subsidies that will be spent on the construction of pipelines, port facilities and liquefaction/gasification plants, the proposed investment in clean energy alternatives is a bargain. The policies that ASES believes should be the core of a responsive national energy policy fall into three categories: infrastructure, finance and education.

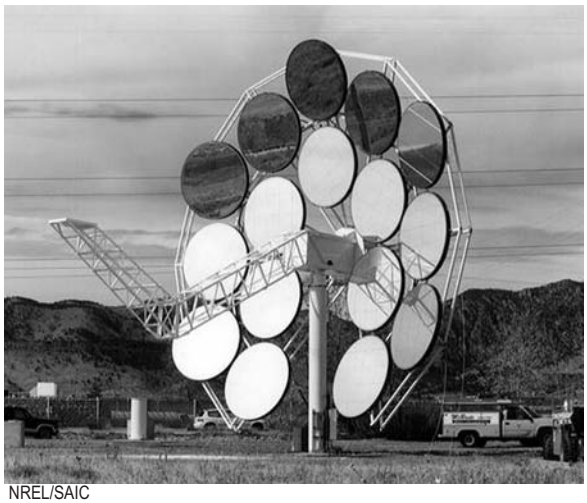
Infrastructure

- A national renewable energy standard (RES);
- A national net metering law;
- Non-discriminatory interconnection standards that allow distributed sustainable energy generators to "plug" into the power grid;
- A hydrogen producing/distributing infrastructure;
- A stable federal research and development program;
- State and local building codes that increase building energy efficiencies;
- Higher fuel efficiency standards for cars and trucks and,
- Higher efficiency standards for appliances.

Finance

- Continuation of production tax credits for at least the next decade;

NREL/Sandia National Laboratories



NREL/SAIC

NREL/National Park Service

Left to right: Combining natural gas turbines with solar-powered central receiver technology will improve the reliability and lower the energy costs of plants such as Solar One in Barstow, CA.; A prototype dish concentrator system developed by Science Applications Int. Corporation of Golden, Colorado, could function as a hybrid by using a Stirling engine that runs on natural gas as well as solar heat; A Washington, DC trash truck runs on compressed natural gas (CNG) and is part of a DOE sponsored demonstration project.

- Significant federal purchases of green power and decentralized sustainable energy systems—$500M or more annually;
- Federal/state/local building regulations promoting efficiency and the use of sustainable energy technologies and designs, as well as green building products;
- A phase-out of subsidies for fossil and nuclear fuels—by 25 percent over the next decade—so that by 2030 these energy sources are no longer receiving subsidization, and,
- Emissions policies that escalate pollution penalties.

Education

- An aggressive public education/media campaign informing consumers about the availability and reliability of various sustainable energy options and encouraging them to do their part in protecting the nation from the ravages of continued dependence on foreign fuels,[7] and
- Education programs targeted to energy decision makers, including architects, builders, HVAC engineers, building managers, fleet managers, mortgage lenders and others.

NREL/Steven Spencer

This zero energy home in Florida combines state-of-the-art energy-efficient building practices with solar energy technologies. A 3.3 kW solar-electric system is integrated into the metal standing-seam roof. It provides all electrical needs including heavy loads due to summertime air conditional. Hot water is provided ay a solar thermal system with a natural gas backup.

A National Renewable Energy Standard (RES)

Enactment of a national renewable energy standard is key to saving natural gas in the near to mid-term. Although a number of states have already enacted an RES, a federal standard (that does not conflict with current state provisions) would create a larger and more uniform market for renewables. ASES has chosen to highlight a national RES both for its ability to open the nation's existing energy infrastructure to sustainable energy technologies and because it can do so in a relatively painless manner via the private market.

A typical RES would require that a share of the power sold in the U.S. must come from qualifying new renewable facilities. Companies generating qualified power would be issued credits that they can hold for their own use or sell to others. In a competitive market, the price of renewable credits should rise to the level needed to stimulate power plant developers to bring on-line the amount of capacity needed to meet the RES requirement.

An RES provides a subsidy to renewables to make them competitive, but the market determines the most economical renewable options to offer. As the price of fossil fuels rises and the cost of sustainable options falls, the (absolute) size of the subsidy needed to make them competitive falls as well. This is the exact opposite of what will need to happen if the nation continues following a fossil fuel standard.

The Energy Information Administration analysis indicates that under a "20 percent by 2020" RES total consumer energy bills for other than transportation would be roughly the same through 2006 as they would without an RES.[8] After 2006, energy bills would increase by only 0.7 percent through 2010 and be 0.1 percent lower with an RES through 2020.

EIA also found that a 20 percent RES would increase average electricity prices (the cost per unit of electricity) by only 3 percent through 2010 and by only 4 percent through 2020. With a 20 percent RPS, electricity prices in 2020 are still projected to be

nearly 7% lower than they are today.

According to the Union of Concerned Scientists the net present value cost of a 20% RES would be $14 billion over the next 18 years. With ongoing natural gas savings after 2020, an RES would likely produce net savings for consumers. The cost of building the infrastructure to become reliant on foreign LNG supplies far exceeds the $14 billion total. Moreover, it is important to note that the $14 billion dollars would be spread over the nation's electric consumers and would stimulate the growth of new industries, jobs and tax revenues.

Conclusion

The importance of domestically available clean energy alternatives has been debated for more than a quarter century. Today's natural gas shortages, unstable petroleum prices and interrupted production brought about by political or social factors and global climate change are not isolated occurrences. These events are showing the nation that the future is here.

It is time, therefore, for the nation's political leaders to take the nation in a direction that frees it from reliance upon energy sources that make it susceptible to wars and environmental degradation. The nation has the technology to respond to this challenge.

In this policy statement the American Solar Energy Society has proposed what it believes is the direction the nation should take to respond to the latest episode of the on-going energy crisis. Rather than committing the U.S. to reliance on energy sources that are beyond its control, finite in nature and harmful to its health, ASES is suggesting concerted and integrated public policies—a national RPS and non-discriminatory interconnection standards and efficiency standards for instance—to bring increasing supplies of sustainable energy online and offset demand for natural gas.

Expanding the use of domestically available sustainable energy sources offers policymakers a way to lower the costs of both the problem and the solution. As importantly, expediting the commercial introduction of these technologies into the marketplace would expand the nation's available energy supplies, without repeating the cycle of dependency. In both the near- and long-terms the cost of investing in domestic sustainable energy production will be much less than the price of continued reliance upon fossil and nuclear fuels.

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Footnotes

[1] Pg 3—Testimony of Chairman Alan Greenspan, Natural gas supply and demand issues, before the Committee on Energy and Commerce, U.S. House of Representatives June 10, 2003

[2] Pg 4—Betting on LNG: UtiliPoint Issue Alert, by Ken Silverstein – Director, Energy Industry Analysis, August 11, 2003

[3] Pg 5—In order of greatest savings

[4] Pg 8—NREL, January 2003, "Myths About Solar Energy," Better Building Series. DOE/GO-102003-1671

[5] Pg 9—Price decrease is not straight-line. Rapid increases in demand can lead to price spikes that subside once new manufacturing facilities are brought on-line.

[6] Pg 9—At least up to 10% renewable electricity, according to administration and up to 20% according to UCS.

[7] Pg 11—See ASES policy papers on individual topics.

[8] Pg 11—"Analysis of a 10 Percent Renewable Portfolio Standard," U.S. Energy Information Administration, May 2003, SR/OIAF/2003-01 (they included a 20 percent scenario)

Additional Information

www.ases.org
The American Solar Energy Society's web site features the complete text of this and other ASES Policy Statements as well as other links and information of interest to solar enthusiasts.

http://www.npc.org/reports/NG_Volume_1.pdf
"Balancing Natural Gas Policy: Fueling the Demands of a Growing Economy," September 2003