not further delay in examining the impact of the treaties and the implementing legislation. We need to expedite the process of resolving issues essential to S.1121.

I intend to work with the Chairman of the Judiciary Committee on these important matters. I want to commend Senator HATCH for the time he has spent and is spending seeking to resolve matters that have become impediments to progress on important intellectual property matters.

Unfortunately, these important legislative matters were stalled last year by linkage to additional issues not necessary to their enactment. We made no progress on the treaties and implementing legislation. America cannot afford further delay.

Some have expressed concern that ratification of the WIPO treaties and enactment of implementing legislation threaten to increase what they perceive to be a current risk that they will be held liable for copyright infringements by users whose conduct they can neither prevent nor control. They are demanding legislation limiting their copyright liability and demanding that it be resolved before ratification of the WIPO treaties and passage of implementing legislation can proceed.

The extent to which and circumstances under which copyright liability may be imposed on online service providers is a matter that I believe could easily be dealt with separately from the WIPO treaties and implementing legislation. Were service provider liability to be considered legislatively, I think that Congress would be better off working toward carefully targeted clarifications of the law rather than attempting to legislate wholesale reform that risks becoming obsolete in a short time, or freezing industry practices and preventing them from evolving as efficiently as possible.

Vinton Cerf, the co-inventor of the computer networking protocol for the Internet, stated in The New York Times:

> The Internet is now perhaps the most global and democratic form of communications. No other medium can so easily render outdated our traditional distinctions among localities, regions and nations.

We see opportunities to break through barriers previously facing those living in rural settings and those with physical disabilities. Democratic values can be served by making more information and services available.

Technological developments, such as the development of the Internet and remote computer information databases, are leading to important advancements in accessibility and affordability of art, literature, music, film, information and services for all Americans. Properly balancing copyright interests to encourage and reward creativity, while serving the needs of public access is the challenge. Historically, the government's role has been to encourage creativity and innovation by protecting copyrights that create incentives for the dissemination to the public of new works and forms of expression.

Intellectual property can, at times, be arcane and abstract. But these matters have very real and important consequences to the American economy and creative spirit, and the viability of industries that produce everything from movies to records to books to software depends on it. That means that the American people are depending on us to put partisan differences aside. We may not make headline news by working on WIPO implementing legislation, but we will help create American jobs.

REMARKS OF GOVERNOR CECIL H. UNDERWOOD ON THE SIGNIFICANCE OF ENERGY RESEARCH AND DEVELOPMENT

Mr. BYRD. Mr. President, on yesterday, Wednesday, January 28, the Governor of the State of West Virginia, Cecil H. Underwood, appeared before the Interior Subcommittee of the House Appropriations Committee to testify about the significance of energy and research development. I ask unanimous consent that the text of Governor Underwood's remarks be printed in the RECORD.

There being no objection, the text of the remarks was ordered to be printed in the RECORD, as follows:

TESTIMONY OF CECIL H. UNDERWOOD, GOVERNOR OF THE STATE OF WEST VIRGINIA, TO THE INTERIOR SUBCOMMITTEE OF THE HOUSE OF APPROPRIATIONS COMMITTEE, JANUARY 28, 1998

Thank you, Mr. Chairman, for the opportunity to testify today about the importance of energy research and development (R&D). I bring to your deliberations the perspective of a governor of an energy-producing state, which also relies on energy-intensive industries for its economic foundation. I also come before you with a regional perspective as the chairman of the Southern States Energy Board.

By way of further introduction, as governor, I have become a leading advocate of the use of technology in moving our state forward. As I have said many times throughout West Virginia, technology is the vehicle that will drive our state into the 21st century. Applications of technology are opening new avenues for meeting the energy needs of our people, our businesses and our industries. Energy R&D will be crucial in the creation and application of the technologies that will fuel our economic engine in the years to come.

Our collective transition into a new century and millennium makes us more cognizant of other economic transitions that are underway. We are moving toward a more global economy, toward a technology-driven and information intensive economy, toward boundless applications of new technology and toward economic diversification that builds upon our industrial foundation.

As we move toward the exciting opportunities of the new times, our nation must be careful that it does not move away from energy-intensive industries that still are economically vibrant and vital or from energy sources that can help meet the growing needs of the future. As with all real progress, though, our success in economic transition depends on our abilities to explore new ways to address traditional challenges.

Our preparation for the future is complicated also by new proposals that seek to improve our physical environment but that may have a devastating impact on the economic environment in many parts of the country, including West Virginia and the chairman's home state of Ohio. The environmental restrictions that may be imposed and the resulting economic impact on many areas make the need for energy research and development that much more urgent.

As governor of an energy-producing state, I sense that urgency more acutely, especially as such R&D would be critical to efforts in three main areas: helping our domestic energy producers meet the challenges of new regulations and an economy in transition; exploring ways that energy producing companies and traditional industries, which use significant amounts of energy, can become environmentally responsible while maintaining economic vitality; and developing new markets for traditional energy resources and new applications to meet changing market opportunities.

Energy-related R&D is a crucial investment in the future of my state and our country. It is critical to preparing the industries of our region for the challenges and opportunities of the new times ahead in the 21st century.

ENERGY ISSUES OF THE FUTURE FOR WEST VIRGINIA

The best way to determine an appropriate course of action is to determine first the goal or destination sought. So I begin my evaluation with what my state and our nation must do with a description of where I want us to be in 12 years.

A Vision for the Year 2010

Our vision for the year 2010 is that West Virginia will be a showcase state for efficient power generation and efficient industrial energy usage. There will be several state-of-the-art, highly efficient, environmentally compliant fossil fuel power generation plants in the state. Coal-based generation plants in West Virginia will be in compliance with all clean air regulations, demonstrating technologies developed in the U.S. Department of Energy (DOE) Clean Coal Technology program. West Virginia's manufacturing plants will be highly productive and energy efficient with virtually all waste heat and waste materials reused and recycled.

Power generation markets in West Virginia will be competitive, deregulated, and electricity rates in West Virginia will be among the lowest in the nation. Residential, commercial and industrial customers, both in and out of the state, will be able to obtain power from the most efficient sources. The power transmission system will have excess capacity, enabling export of additional power from the state; West Virginia generators will have access to the transmission grid at rates that reflect the actual cost of transmission. We believe that in 2010, as is the case today, about 75 percent of the power generated in West Virginia will be sold in competitive markets out of state and that growth in demand for power generated in West Virginia will average about 2 percent per year.

Our vision for 2010 is that West Virginia will have a significant involvement in the development and demonstration of environment technologies that enable domestic fossil fuels to remain the country's dominant fuel for generation of electricity. For example, West Virginia projects will demonstrate technologies, which reduce the amount of CO_2 introduced into the atmosphere during extraction and use of fossil fuels. Technologies to capture CO_2 and sequester it in

deep underground coal mines and gas reservoirs will be developed and demonstrated in the state.

Furthermore, West Virginia will be a major technology innovator for non-CO_2 producing uses of coal. For example, there will be a growing industry in the state for production of chemicals and advanced carbon materials made from coal-based feedstocks.

In 12 years, the West Virginia coal mining industry will continue to be highly efficient and use state-of-the-art technologies that minimize environmental and social impacts of mining. Current and past mine sites will be reclaimed and waterways will be protected from acid mine drainage.

For our basic industries such as aluminum, steel, glass, chemicals, wood products and mining to remain globally competitive in the year 2010, we believe it will be necessary for them to continually improve their productivity by participating in programs such as the U.S. DOE's Industries of the Future (IOF) program. For that reason, West Virginia is working with the Office of Industrial Technologies to develop a state-level IOF program to promote industry, government and academic cooperative projects to improve industrial productivity through energy efficiency, waste minimization and use of new technologies.

In our vision of 2010, West Virginia's coal and natural gas companies will work together with utilities and high technology companies on collaborative projects to help West Virginia manufacturing industries remain globally competitive.

For the year 2010, we envision at least 25 percent of West Virginia's fleet and commuter vehicles being powered by alternate fuels, such as natural gas, electric, hybrid electric or coal-based diesel. Natural gas refueling stations and recharging facilities will be conveniently located across the state. Furthermore, we anticipate that West Virginia will be participating in a consortium of mid-Atlantic states developing a high-speed, intercity light-rail transportation system.

West Virginia will continue to be the largest producer of natural gas east of the Mississippi River, as well as a major storage and transfer area for interstate natural gas transmission systems. West Virginia is becoming a major producer of coalbed methane, and by 2010, no coalbed methane will be flared or vented to the atmosphere. It will be recovered and used for production of heat and power.

In addition to coal and natural gas, West Virginia will have by 2010 a diversified portfolio of energy sources including coalbed methane, wood residues, waste coal, wind and biomass.

POTENTIAL BARRIERS TO ACHIEVING THE VISION

There are several potential barriers to West Virginia achieving its vision for 2010 relative to power generation and industrial energy efficiency. We have serious concerns with the Environmental Protection Agency's emissions standards for NO_x, as proposed on November 7, 1997. Likewise, our state is also concerned about how, as a result of the Kyoto Conference, new restrictions on greenhouse gases—in particular CO_2—could have a devastating impact on the cost of energy production and the economy of our state.

EPA's proposal prescribes an overall NO_x reduction of 44 percent from West Virginia sources. This would require power plants in the state to reduce their NO_x emissions by as much as 85 percent from 1990 levels and other industrial/manufacturing sectors by 25 percent to 70 percent. The impact on the state could be severe, jeopardizing up to 11,000 jobs in the manufacturing and power generation industries—more than 12 percent of West Virginia's industrial work force.

There is growing concern around the world about global climate change due in part to burning fossil fuels. West Virginia expects to do its part to prevent global climate change, but we strongly believe that greenhouse gas emissions standards should be equitable worldwide and based on science. Allowing developing nations to have an unfair advantage over developed nations on the amount of emissions allowed puts the United States—and more specifically states, such as West Virginia—at a competitive disadvantage. Consideration must be given to potential economic impacts of precipitous CO_2 reductions and R&D programs developed to ensure the energy security of the country.

As a competitive electricity industry evolves and various federal and state-level legislative restructuring bills are considered, it is important that West Virginia be able to export power. There should be no barriers to the sale of low-cost West Virginia electricity to customers in other states. The cost of transmitting electricity should reflect the actual marginal costs of transmission. Flat rate (postage stamp) pricing schemes for transmission would weaken West Virginia's advantage of being a low-cost electricity producer located near the major East Coast load centers.

Exporting West Virginia power to out-of-state customers requires adequate transmission capacity and fair transmission pricing policies. West Virginia should be included in the dialogue on formation of regional transmission groups and procedures for operating the transmission system.

Formulation of sound energy policy requires a thorough knowledge of the relative costs of producing and consuming power from various fuels and with various technologies. For example, the true environmental costs of renewable energy sources such as wind, hydro and photovoltaic need to be understood better. Furthermore, the cost of externalities such as a military force to guarantee access to offshore sources of crude oil is not reflected in the domestic price of petroleum products.

RESEARCH AND DEVELOPMENT NEEDED TO ACHIEVE THE VISION

Research must be conducted on cost-effective technologies to minimize emissions of greenhouse gases, NO_x, particulates and other pollutants associated with the use of fossil fuels. Such research could be conducted through cooperative university, industry and government agreements, but the R&D priorities must be determined by industry. An excellent model for developing industry-led research agendas is the U.S. DOE's Industries of the future program run by the Office of Industrial Technologies. The U.S. DOE Clean Coal Technology program is also a model of industry/government cost-shared research that encourages commercial implementation of new technologies to improve efficiency and ameliorate environmental impacts of coal-based power generation. Such technologies are important to the energy security of the country in the event crude oil supplies are interrupted or the price of natural gas increases sharply.

Research and Development Related to Power Generation and Transmission

Several fields present compelling opportunities to explore strategies and new approaches that would: increase efficiency and reduce the costs of producing electricity with new technologies such as low NO_x burners, fuel cells, coal gasification combined cycle, cofiring with biomass or natural gas, etc.; improve efficiencies on retrofit technologies, reduce pollution emissions and extend the life of existing power plants; continue investment in certain clean coal technologies to further reduce costs, improve efficiency and reliability and minimize emissions; optimize all aspects of power plant operation toward increased efficiencies; and explore ''in-situ'' utilization of existing coal reserves.

Develop technologies for eliminating NO_x emissions from diesel engines; explore technologies for capturing, utilizing and sequestering CO_2; design pollution permit trading systems that treat fixed and mobile sources equitably; improve and validate mathematical models of pollution transport and global climate change phenomenon; increase the reliability and capacity of existing transmission line right-of-ways with use of improved power electronics, high-temperature super conductors, voltage control, protection against sudden voltage collapse, improved system stability and real-time monitoring of line temperatures; reduce further the cost of high-voltage DC transmission lines; improve understanding of how electric power markets work. (Studies to determine the actual costs of transmitting power so economically efficient, i.e., marginal cost, transmission-pricing schemes can be devised); and assess economic and scientific impacts of rule making.

Research and Development Related to Industrial Energy Efficiency

West Virginia is working through the national industries of the Future program to implement an IOF–WV program to identify and conduct multidisciplinary projects, which will be of real benefit to West Virginia's aluminum, steel, glass, chemical and wood products industries. At a recent IOF–WV Symposium in Charleston, the five industry groups were asked to brainstorm the question, ''What specific projects should be undertaken to increase productivity and reduce costs through improved energy efficiency, reduced waste, use of new technologies, better inventory and management systems, etc.?'' There were 33 project ideas from the aluminum industry group, 21 from the steel industry group, 15 from the glass industry group, 26 from the chemical industry group and 16 from the wood/forest products group. Over the next year, the IOF–WV program will expand to include metal casting and mining.

Their suggestions for the fields of R&D include: strategies to reduce the cost of power for West Virginia's energy intensive manufacturing industries, e.g., better energy demand management systems; new systems for improved on-line process monitoring and improved sensors and controls; development of better waste minimization and recycle strategies, e.g., industrial wastewater treatment technologies; product designs for recycling materials and wastes; more effective recovery and use of industrial waste heat; better strategies for cross industry use of waste and by-product from one process or company as feedstock for another; streamlined environmental permitting processes; and evaluation of proposed mining sites in terms of potential acid water production, subsidence and impacts on roads, bridges and scenic areas.

FUNDING FOR ENERGY AND INDUSTRIAL EFFICIENCY R&D

Deregulation and competition in the electricity industry could lead to reduced spending by the private sector on long-range energy related R&D. The federal government must provide leadership with incentive programs to co-fund development and implementation of a spectrum of energy technologies. The DOE and the states will need to develop cooperative R&D programs appropriate to the needs and resources of individual states.

All stakeholders must make investments in energy R&D. Although generation is being deregulated, transmission and distribution of electricity will remain regulated. State and

federal laws on restructuring of the electricity industry can authorize wire charges or other fees to develop a pool of funding for energy R&D projects. The energy industries in West Virginia must play leading roles in developing resources to support R&D on environmentally compliant technologies for fossil-based power generation. Investment in implementing these technologies also will be required.

To retain the interest and involvement of West Virginia companies in the Industries of the Future program, it is necessary that we make rapid progress toward funding for joint projects, which will benefit their future survivability and competitiveness. We are currently working with five industry sectors (aluminum, steel, glass, chemicals and wood/forest products) and plan to add metal casting and mining. A budget of about $1,750,000 per year would be required to run a meaningful state-level IOF program.

State and federal incentive programs that encourage companies to invest in new technologies that save energy and minimize emissions should be expanded. The U.S. DOE's existing program in National Industrial Competitiveness through Energy, Environment, Economics (NICE–3) Is an effective mechanism to encourage private-sector Investment in new energy efficient technologies.

The U.S. DOE's State Energy Program provides funding directly to the states, permitting them the flexibility to support energy initiatives that are uniquely Important to their situations. In West Virginia, a cornerstone of the State Energy Program is our work with industry to identify process modernization opportunities. These industrial projects yield meaningful cost-savings and environmental benefits that are key to the long-term health of our nation's industries. International trade treaties require that our industries become more competitive. West Virginia became the first state to institute a state level Industry of the Future program.

Another Important component of our energy program is the promotion of alternative fuels. Through the State Energy Program, we are supporting alternate fuels training programs, as well as development of a compressed natural gas fueling infrastructure. West Virginia was one of the first states to Initiate a statewide Clean Cities program. The overall goal of the State Energy Program is to enhance our nation's energy security.

SUMMARY

In summary, production and utilization of fossil fuels, generation and transmission of electricity and energy intensive manufacturing industries dominate the economy of West Virginia. We envision our low-cost electricity and manufacturerd goods as being critical to the energy security and industrial competitiveness of the nation throughout the next century. The energy research needs and agenda outlined in this paper are of great Importance to our state. We are committed to participating in partnerships and coalitions to develop resources and to carry out the R&D program. West Virginia wishes to participate fully in the energy/environment/economic policy debates. We very much appreciate the opportunity to present our thoughts to the Interior Subcommittee of the U.S. House of Representatives Appropriations Committee and look forward to further discussions and actions.

EDUARD SHEVARDNADZE

Mr. BYRD. Mr. President, on January 25, 1998, this past Sunday, the President of Georgia, Eduard Shevardnadze, celebrated his 70th birthday. President Shevardnadze is one of the central international political figures of our age, and has been pivotal in the transformation of the communist Soviet empire into a group of nation states which have now embraced the goals of individual freedom, democratic processes, and free market economics. It is noteworthy that this transformation, the dismantling of an empire with large intelligence and military forces, and with a history of inbred hostility toward the West, occurred absent any violent confrontation with the United States, or our European allies.

Much of the credit for this peaceful transformation, the ending of the Berlin Wall and the cooperation between the Soviet leadership and the United States on major arms control and reduction agreements, rightfully belongs to the enlightened and forceful personality of Mr. Shevardnadze. His role emphasizes the crucial part played by personalities in the shaping of the major events of human history. He serves as an example that history is shaped to a large extent by individual men, rather than by social movements or economic imperatives.

For instance, Russian cooperation with the United States in working to condemn, and then oust, Saddam Hussein's forces from their occupation of Kuwait was to a large extent due to the courageous support of Mr. Shevardnadze in the face of opposition from forces in Russia which wanted to preserve a historic Russian-Iraqi alliance. His help in establishing a cooperative relationship with the United States regarding the invasion of Iraq actually forced Gorbachev's hand and trumped the Soviet security bureaucracies. It has been well documented that Shevardnadze quickly shed the negative approach to East-West relations that was the hallmark of former Russian Foreign Minister Andrei Gromyko when Shevardnadze took over the Foreign Ministry of the Soviet Union in 1985. Both former Secretaries of States George Shultz and James Baker have written extensively about Shevardnadze and praised his many contributions to the ending of the cold war. As a former U.S. Ambassador to the Soviet Union, Jack Matlock, has written in the September 25, 1997, issue of the ''New York Review of Books,'' ''If Gorbachev had been served by a less imaginative and courageous foreign minister it is doubtful that the cold war could have been ended as rapidly and definitively as it was.''

Shevardnadze served as Soviet Foreign Minister from 1985–1991, and presided over the rapid transformation of East-West relations and the end of the cold war. It was, as I have said, an extraordinary era in which we have all been fortunate to participate in and to witness. In 1991, Eduard Shevardnadze resigned as Soviet Foreign Minister in protest over what he perceived as the coming of a military dictatorship in Russia, and he returned to his native Georgia. Georgia was in an advanced state of shambles, with the economy devastated following the breakup of the Soviet Union. The country was in a state of ruinous civil war. Shevardnadze entered political life there, and was elected president of Georgia in November 1995, with over 70 percent of the vote. Currently, he also serves as the Commander in Chief of the armed forces of Georgia, and has brought new hope, stability, and economic development to that nation. A new constitution has been adopted, and Shevardnadze has secured the transportation of Caspian oil through Georgia and negotiated a number of agreements with both Russia and the neighboring Caucasus states. As the current ambassador of Georgia to the U.S., the Honorable Tedo Japaridze, has written to me regarding President Shevardnadze's goals, ''he is committed to build democracy in Georgia, brick by brick.''

Eduard Shevardnadze is a man who has made a difference in our age, and he will continue to make a difference. He has many admirers in the United States, including myself, and I wish him well on the event of his 70th birthday.

I yield the floor.

Mr. ABRAHAM addressed the Chair.

The PRESIDING OFFICER. The Senator from Michigan.

TRIBUTE TO JOHN McGOFF

Mr. ABRAHAM. Mr. President, I rise today to pay tribute to a good friend and a business leader from my State who recently passed away, Mr. John McGoff. Mr. McGoff was one of our State's most successful business leaders, making his fortune, and his impact, primarily in the area of publishing. He owned a number of news publications and was a great success, but I think he would prefer to be remembered for several other things he achieved in his lifetime.

First was his great sense of community spirit. Mr. McGoff was truly a man who loved the communities in which he lived. He invested considerably, out of his own resources, in the communities in which he resided, in the schools of those communities, in our State's university system, and in a variety of other valuable institutions.

In fact, when tribute was paid to him last Saturday, it was in an auditorium in the high school serving the tiny town in which he lived, an auditorium which he personally had built with his own dollars.

I think John McGoff also would want to be remembered as a man who loved his country. He put this love to the test by serving in the United States military. He served with distinction in the infantry during World War II, both in North Africa and in Europe. He also played an active role in the political process, in our State and at the national level.

He was committed to the discussion of public policy. And he acted on this