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HEARING

BEFORE THE

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS UNITED STATES SENATE

NINETY-SECOND CONGRESS

SECOND SESSION

ON

NOMINATIONS OF DR. BEATRICE WILLARD AND MR. JOHN
BUSTERUD TO MEMBERSHIP ON THE COUNCIL
ON ENVIRONMENTAL QUALITY

OCTOBER 6, 1972

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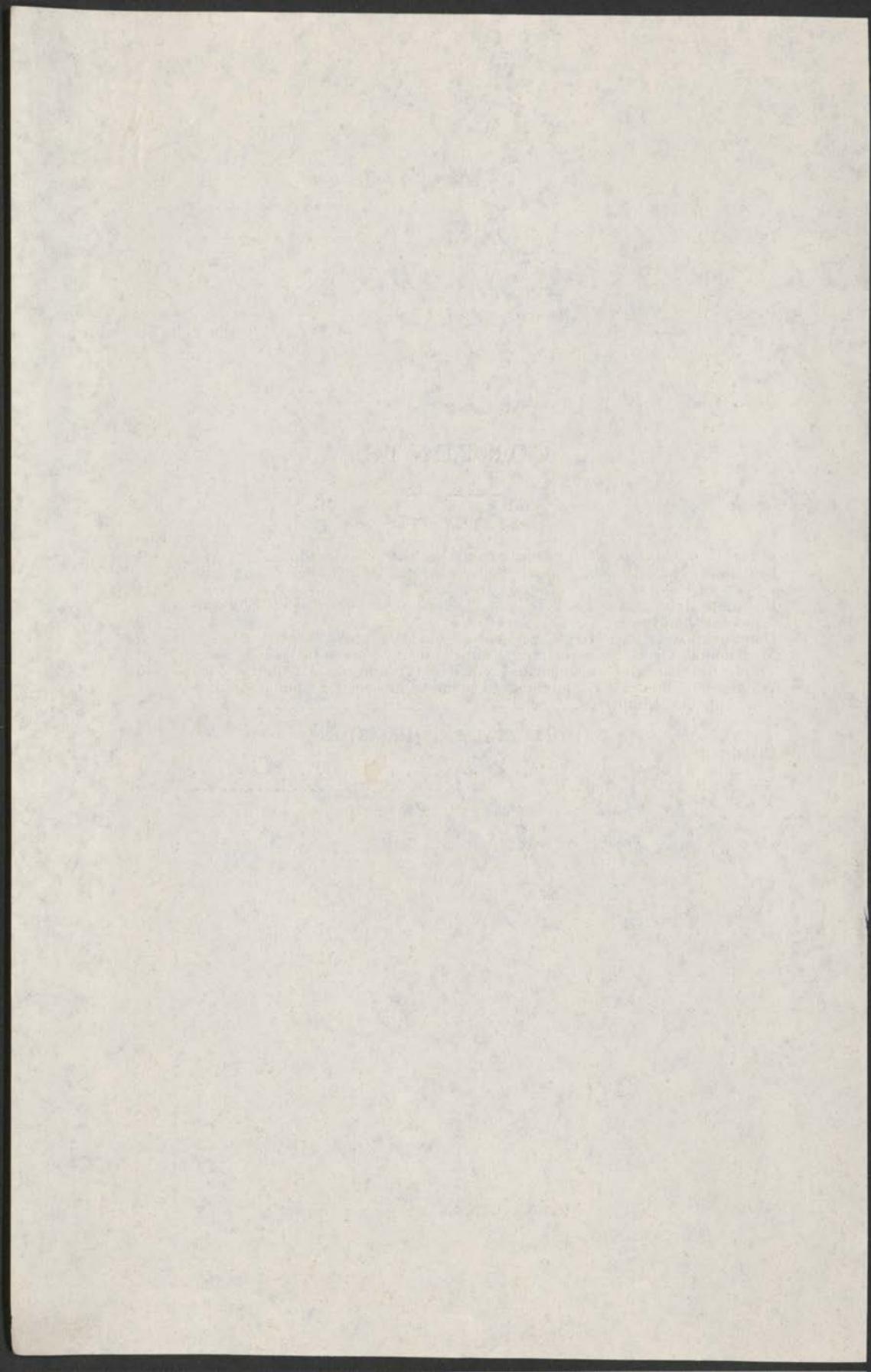
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NOMINATIONS OF DR. BEATRICE WILLARD AND JOHN BUSTERUD TO MEMBERSHIP ON THE COUNCIL ON ENVIRONMENTAL QUALITY

FRIDAY, OCTOBER 6, 1972

U.S. SENATE,
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
Washington, D.C.

The committee met at 10 a.m. in room 3110, New Senate Office Building, Hon. Henry M. Jackson (chairman of the committee) presiding.

Present: Senators Jackson (presiding), Anderson, Moss, Burdick, Jordan, Hansen, Bellmon and Buckley.

Also present: Jerry Verkler, staff director; Bill Van Ness, chief counsel; Steve Quarles, special counsel; Mary Jane Due, staff counsel; Suzanne Reed, staff associate; Thomas Nelson, deputy minority counsel; and Charles Cook, minority counsel.

Senator BURDICK (presiding). This is an open public hearing before the Senate Interior and Insular Affairs Committee to consider the President's nominations of Dr. Beatrice E. Willard and Mr. John A. Busterud to be members of the Council on Environmental Quality.

Chairman Train, the committee is delighted that you are here this morning to introduce the nominees to the committee. The responsibilities of the Council over the past 2½ years have been ably and diligently fulfilled by Dr. Gordon MacDonald and Mr. Robert Cahn, who have served as members of the Council. The committee regrets that they are leaving Government, but we wish them the greatest success in their future endeavors.

Today we are considering the nominations of two new members of the Council on Environmental Quality. On behalf of my colleagues, I want to welcome Dr. Willard and Mr. Busterud to the committee.

I have before me copies of their résumés and, without objection, I will place them in the record at this point.

(The documents follow:)

PERSONAL RÉSUMÉ OF JOHN A. BUSTERUD

Date and Place of Birth.—Coos Bay, Oregon, 7 March 1921.

Marital Status.—Married to Anne Witwer with three children, John 16; James 14; Mollie 12.

Home Address.—102 Mountain View Avenue, San Rafael, California 94901.

Local Address.—6737 Towne Lane Road, McLean, Virginia 22101.

Present Position.—Deputy Assistant Secretary of Defense (Environmental Quality).

Former Professional Affiliation.—Attorney, Partner in Law Firm of Busterud, Draper and Adams, San Francisco, California. Emphasis in law practice on conservation and environmental law and on antitrust law. (See attached statement.)

Education.—University of Oregon, 1943, BS with Honors; Yale Law School, 1949, LL. B; Phi Beta Kappa; Editor, *Yale Law Journal*; Phi Delta Phi.

Community and Public Activities.—Past President, Commonwealth Club of California (1970). President, Headlands, Inc., a charitable conservation organization formed to preserve the Golden Gate headlands (1968-71). Marin County Chairman, People for a Golden Gate National Recreation Area (1971). Vice President, Associated Regional Citizens, a charitable organization devoted to study of regional government for San Francisco area. Member, Sierra Club. Former Member of Assembly, California Legislature (1957-62). Chairman, Assembly Committee on Constitutional Amendments (1959-61). Special Counsel to California Legislature on Constitutional Revision (1963-65). Member, California Constitution Revision Commission (1965-71).

ENVIRONMENTAL BACKGROUND

Mr. Busterud presently is Deputy Assistant Secretary of Defense for Environmental Quality, a position which he has held for the past year. In this role he has exercised responsibility for establishing Department of Defense policy for compliance with the National Environmental Policy Act, Presidential executive orders in the environmental quality field, and other Federal and State laws dealing with this subject.

The Department of Defense environmental quality program has developed rapidly under Mr. Busterud's leadership, with military construction pollution control budget requests for FY 73 of 171 million dollars, and a total environmental program of that fiscal year of 313 million dollars.

Mr. Busterud's office has supervised and expanded the Department's program of environmental impact analysis, surveyed the use of non-military lands by Department of Defense agencies, engaged in environmental demonstration projects in cooperation with the Environmental Protection Agency and the Council on Environmental Quality, and encouraged increased interest in the field of natural resources management of the some 26 million acres of real estate controlled by the Department of Defense.

Mr. Busterud has been considered a progressive voice within the Department of Defense on environmental matters and participated in the Stockholm Conference on the Human Environment. He is a member of the Committee on International Environmental Affairs of the Department of State.

Prior to his present assignment Mr. Busterud was a senior partner in the law firm of Busterud, Draper and Adams in San Francisco specializing in conservation and anti-trust law.

Mr. Busterud was a founder and President of Headlands, Inc., a charitable conservation organization which was formed to give assistance to the Department of Parks and Recreation of the State of California in connection with development of the Marin Headlands State Park. Under his leadership a state appropriation was obtained which permitted purchase of the Kirby Cove Area of Fort Baker on the Golden Gate for inclusion in the Marin Headlands State Park. He has fought along with conservationists to prevent construction of the proposed City of Marinello in southern Marin County.

Mr. Busterud also served as Marin County Chairman and as a member of the Board of Directors of the Citizens for a Golden Gate National Recreation Area formed for the purpose of supporting creation of the National Recreation Area as part of the President's Program of Parks to the People. He has also been a member of the Marin County State Parks Advisory Committee to the State of California.

Mr. Busterud has been active in the Nature Conservancy and the Sierra Club.

While President of the 14,000-member Commonwealth Club of California in 1970 he created a new Club Study Section on the Environmental Crisis, to review the interrelationships between proposed Federal and State environmental quality laws.

Mr. Busterud has been active in many community conservation projects, including leadership of a Green Belt coalition in San Francisco which successfully urged purchase and preservation of a key 13-acre wilderness area on the slopes of Mount Sutro in the heart of the city. He also has been allied with other conservationists in a number of zoning and building height battles in San Francisco and Marin County.

Mr. Busterud was also a founder and Executive President of the Associated Regional Citizens, a charitable organization dedicated to the formation of a proposed limited regional government in the San Francisco Bay area to better

coordinate area-wide planning and conservation effort such as the on-going programs of the Bay Conservation and Development Commission.

In addition to Mr. Busterud's work on environmental and conservation matters, he has served as a member of the California Constitution Revision Commission for nearly 10 years, and supported inclusion of a special provision in the California Constitution dealing with environmental quality.

Mr. Busterud was born in Coos Bay, Oregon and is a resident of San Rafael, California. He is married and the father of two sons and a daughter. Among his hobbies he lists back packing, tennis, golf and jogging.

PERSONAL RÉSUMÉ OF DR. BEATRICE E. WILLARD

Date and Place of Birth.—Palm Springs, California, December 19, 1925.

Marital Status.—Single.

Home Address.—1529 Columbine Avenue, Boulder, Colorado.

Present Position.—President (since 1970), Thorne Ecological Institute, Boulder, Colorado.

Former Professional Affiliation.—1967–1970 Vice President, Thorne Ecological Institute; 1965–1967 Executive Director, Thorne Ecological Institute; 1963–1964 Assistant Professor of Biology, S. Oregon College, Ashland; 1960–1963 Teaching Assistant, Department of Biology, University of Colorado, Boulder; 1958–1963 Research Assistant, Institute of Arctic and Alpine Research, University of Colorado, Boulder; Previously: Teacher in public schools, Ranger Naturalist in National Parks.

Education.—B.A. Stanford University, 1947, in Biological Sciences; M.A. University of Colorado, 1960, in Botany (Plant Ecology); Ph.D. Same, 1963, in Botany (Plant Ecology).

Community and Public Activities.—Secretary, Colorado Air Pollution Control Commission, 1970–1971; Member, Colorado State Advisory Committee on Environmental Education 1969–1970; Secretary and Trustee, Rocky Mountain Center on Environment; President, Colorado Open Space Council, 1968–1969; Trustee, Aspen Center for Environmental Studies 1970 to date; Member, Colorado Environmental Inventory Advisory Committee 1970–1972; Founder and director, Seminar on Environmental Arts and Sciences for national decision-makers, Aspen 1967 to date; Founder and director, Seminars on Ecology, Rocky Mountain National Park 1962 to date.

Chairman, Denver Olympic Planning Commission, 1971 to date; Recipient, 1970 American Motors Award for Professional Conservation; Recipient, 1969 Colorado Conservationist of the Year Award by Colorado Wildlife Federation (with Dr. Estella B. Leopold); Trustee, Colorado Chapter of Nature Conservancy; Chairman, Rocky Mountain Chapter, Sierra Club; Member, Ecological Society of America, AAAS, American Institute of Biological Science, National Parks Association, Wilderness Society.

Publications.—Co-author. 1972 (in press). Landscape above the Trees. Harper-Row, New York. Illust.

Willard, B. E. and J. W. Marr. 1971. Recovery of alpine tundra ecosystems from visitor impact, Trail Ridge, Rocky Mountain National Park, Colorado. *Biological Conservation*.

Willard, B. E. and J. W. Marr. 1971. Effects of human activities on alpine tundra ecosystems in Rocky Mountain National Park, Colorado. *Biological Conservation* 2(4):257–265.

Marr, J. W. and B. E. Willard. 1970. Persisting vegetation in an alpine recreation area in the S. Rocky Mountains, Colorado. *Biological Conservation* 2(2):97–104.

Willard, B. E. and C. O. Harris. 1963. Alpine Wildflowers of Rocky Mountain National Park. Rocky Mountain Nature Association. 24 p.

Willard, B. E. et al. 1959. A Guide to the Mammoth Lakes Sierra. Wilderness Press. 141 p. Rev. 1963, 1969.

Senator BURDICK. Are there any additions or alterations you would like to make in your résumés?

Mr. BUSTERUD. No, sir.

Senator BURDICK. Now, we are also pleased to see our colleague, Senator Dominick, with us this morning.

I think we can take the witness people as Senator Dominick is here, Chairman Train is here, Dr. Willard, you are all here.

Senator JORDAN. Mr. Chairman, may I welcome our prospective new members here this morning, along with our colleague, Senator Dominick, to express the gratitude of all of us to the fine work that the gentlemen that are retiring have given their service to the Nation on this very important task.

I have a statement here, Mr. Chairman, by Senator Allott, which I should like included in the record at this point, and also a statement of Congressman Brotzman, from the Second District of Colorado, to be included.

Senator BURDICK. They will be included at this point, without objection.

(The documents follow.)

STATEMENT OF HON. GORDON ALLOTT, A U.S. SENATOR FROM THE STATE OF COLORADO

Mr. Chairman, although other commitments have made it impossible for me to be at the hearing this morning, I wish to express my support of both nominees. I believe both nominees are eminently qualified for membership on the Council on Environmental Quality.

I have known Dr. Beatrice Willard for many years. Her outstanding efforts contributed immeasurably to the successful establishment of the Florissant Fossil Beds National Monument in Colorado, including the prevention of development while the legislation was pending. She is highly regarded for her professionalism by Coloradans and by her colleagues in the environmental movement. As a distinguished ecologist, she has been called upon to perform a variety of consulting work for many governmental agencies, industries and other organizations. With her many years of field experience, I believe she will bring to the Council on Environmental Quality new insights so essential to the conquest of the myriad of environmental problems facing this Nation. If man is to survive on this spaceship we call the Planet Earth, he must learn to live within the forces of Nature which have produced our environment. By so doing, Nature can be made to work for man, and I believe Dr. Willard can help us in our search for a better life and greater harmony with Nature.

It is particularly fortunate that the President was able to select such a distinguished ecologist for this important post, and I wholeheartedly support her nomination.

Mr. John Busterud, as Deputy Assistant Secretary of Defense for Environment, has had very relevant experience in applying our new environmental laws to the widespread operations of the Department of Defense. The abatement of pollution from federal facilities and the assessment of the environmental impact of major Defense Department actions have been his area of responsibility and give him excellent preparation for his work on the Council.

I strongly support both nominations. In my view our Committee filled a very important need when it helped create the Council on Environmental Quality in the Executive Office of the President. The Council has performed very important work under the able Chairmanship of Russ Train. It has helped draw together the President's environmental programs, it has published very useful Annual Environmental Quality reports, and it has overseen the implementation of the National Environmental Policy Act.

I feel we can look forward to a continuing good working relationship between our Committee and the Council in the challenging task of seeking a quality environment, and I feel both nominees will contribute much to that working relationship.

Mr. Chairman, I urge the early confirmation of these excellent nominations to the Council on Environmental Quality. We need them "on the job" as soon as it is practicable.

STATEMENT OF HON. DONALD G. BROTZMAN, A U.S. REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO

Mr. Chairman, I am pleased to be able to submit this statement in behalf of Dr. Beatrice E. Willard's confirmation to a position on the Council on Environmental Quality. I have known Dr. Willard for a number of years, and currently have the privilege of being her representative in the House of Representatives.

Dr. Willard is admirably well suited for this appointment. She has been a powerful and positive force in the Nation's ongoing crusade to understand the earth's ecological systems so that we may come to grips with problems which have gone unsolved for decades and even centuries.

I believe Dr. Willard's background will serve to make her a distinguished member of the Council on Environmental Quality. Her background has given her great insight into the interrelated environmental problems facing the nation. She has taught in the public schools and at the university level. She is well published in her field of plant ecology. Her current position as the President of the Thorne Ecological Institute places her in daily contact with those industries anxious to operate in compliance with sound ecological practices, and with those who seek to expand human understanding of environmental balances.

Hers has been a responsible voice at a time when many have been immoderate. She has provided leadership in not only the State of Colorado, but also throughout the Nation when it has been needed most. The Federal Government sorely needs people of Betty Willard's scientific excellence and leadership ability in formulating and executing its environmental policies. With people like her giving us guidance, I feel we can achieve the magnificent goal of being the first generation in the modern history of this world to leave the earth, its waters and its atmosphere in better condition than we found them.

I am confident, Mr. Chairman, that the distinguished members of this Committee will send Betty Willard's nomination to the floor of the Senate with a favorable recommendation, and that the full Senate will then speedily confirm her appointment to the Council on Environmental Quality.

Senator BURDICK. Senator Anderson, do you have anything to say?

Senator ANDERSON. No, thank you.

Senator BURDICK. Senator Hansen?

Senator HANSEN. I have nothing.

Senator BURDICK. Senator Moss?

Senator MOSS. I have nothing, thank you, Mr. Chairman.

Senator BURDICK. Well, it is about time for the introduction, Peter.

STATEMENT OF HON. PETER H. DOMINICK, A U.S. SENATOR FROM THE STATE OF COLORADO

Senator DOMINICK. Senator Burdick, gentlemen of the committee, I must say I am delighted to see so many up there after such a late night as we had last night. You are all looking bright and alert. But it is fine to be back before you, even though I am on the wrong side of the table. I have served on the committee before, so it is always great to get back here.

I would say, Mr. Chairman, that I am here to introduce to you Dr. Beatrice Willard, who has been a great friend and a great supporter of the environmental structure ever since I have known her, and highly capable.

Born in California, she lives in Boulder, Colo., and since 1970 has served as the president of the Thorne Ecological Institute.

Her educational and professional qualifications which appear at length in the Congressional Record of September 29 reflect the dedication and expertise that she has had and will bring to the Council on Environmental Quality. She received her undergraduate degree in biological sciences at Stanford in 1947, her masters and doctorate in plant ecology at the University of Colorado.

She served as the secretary of the Colorado Air Pollution Control Commission and the Rocky Mountain Center on Environment, of which I have been a member, and I have been an active supporter.

She was president of the Colorado Open Space Council, and is currently a trustee of the Aspen Center for Environmental Studies.

In addition to her numerous community and public activities, she continues to find time for research and writing, and has coauthored numerous publications, of which I have a list here and I would like to have them included at this point, if I might.

Mr. Chairman, I want to go just beyond the bare facts and say that I have known Betty Willard for quite a while. As I say, I have known her at Thorne Ecological Institute for a while. They have done a fabulous job in our State and various areas of the country. They are working in close cooperation through the whole Rocky Mountain area, and are engaged at the present time—she is, and I know the institute is—in working on some of the problems that we have got and trying to aline together the environmental need to maintain our environment, is what I should say, together with the need to also continue to develop our resources.

So, all I can say to you is that I can't think of a finer choice, and I am very, very happy to introduce her to you, and certainly urge her quick confirmation.

Senator BURDICK. Thank you.

Chairman TRAIN.

STATEMENT OF HON. RUSSELL E. TRAIN, CHAIRMAN, COUNCIL ON ENVIRONMENTAL QUALITY

Mr. TRAIN. Yes, Mr. Chairman, it is a great pleasure for me to introduce the nominee, Mr. John Busterud, Deputy Assistant Secretary of Defense for Environmental Quality, who has been nominated by the President for the other vacancy on the Council.

I will, if I may, at the conclusion of my remarks, make some comments about both nominees together.

But I do wish formally to introduce Mr. Busterud. I have known him now for several years in his present capacity in the Department of Defense, and I know both by reputation of his active work in environmental affairs of the State of California, where he was an attorney, a member of a law firm, a member of the State legislature, and active in encouraging a variety of environmental activities, particularly in the open space field.

He was born in Coos Bay, Oreg., but has lived in California a number of years. He came to Washington in 1971 when he was appointed Deputy Assistant Secretary of Defense for Environmental Affairs.

This, as you know, has been an area of rapidly increasing priority within the Defense Establishment. The Armed Forces, in many of their activities, obviously, impact significantly on environment, and Mr. Busterud has played a role of strong leadership in the Defense Department to encourage the development of procurement policies and other defense-related policies, all leading to the greatest possible protection of the environment in the activities of the Department of Defense.

I commend him to you. I think he will be a strong member of the Council, and it goes without saying how I strongly endorse and support his nomination.

I believe that the two nominees bring an unusual balance to these two vacancies. Dr. Willard, I have known now for some years, and I have known of her work perhaps better than I have had the opportunity to know her personally. She is a trained ecologist, and she has fortunately, from my standpoint, been involved not so much in academic research as she has been actively involved in the practical application of ecological values, environmental concerns, to the day-to-day requirements of effective planning and decisionmaking, and activities particularly in Colorado, but also in the Rocky Mountain area, generally.

This, of course, is one of our most important objectives in the Council, to bring ecological principles and training to bear on the decisionmaking process, so that I think that Dr. Willard has a particularly strong background in this respect.

Senator Dominick has already spoken to this briefly, and I think that this committee will come to recognize this very strong resource that Dr. Willard brings to the work of the Council.

Mr. Busterud is not a scientist, as I am not, he is a lawyer, and bring to the Council not only the skills of a practicing attorney, but also a background of wide experience in the State and Federal Governments, and the work of the Council, as you know, cuts across the work of practically every agency of the Federal Government. We have many contracts with Federal agencies and, of course, with the Congress.

We, likewise, believe very strongly, as does the President, that the pursuit of environmental policy should involve actively the State governments and local governments, and in all of these areas I think Mr. Busterud will bring very great strengths to the work of the Council.

As I said earlier, the two of them together, I believe, will provide a very balanced team, and I likewise commend Dr. Willard to the favorable consideration of this committee. I think she will be an outstanding member of the Council.

It is going to be very hard for both new members to follow in the footsteps of Dr. MacDonald and Mr. Cahn. Those two gentlemen have been well known to this committee. They have done an outstanding jobs as members of the Council. They, too, brought great balance to the work of the Council, a very strong scientific background, a very strong relationship to the citizen conservation movement.

I am not sure that the two new members can improve on those we are losing, If they can measure up to the standard that has been set, they will have achieved, I think, everything that the President will require of them.

Dr. MacDonald and Mr. Cahn set an enviable record. I am very sorry to see them leave the Council, but since their private affairs have led them to this decision, I am absolutely delighted with the replacements on the Council that the President has chosen. He has made two outstanding choices, and I am sure this committee, in its work with them, will agree.

Thank you very much, Mr. Chairman.

Chairman JACKSON (presiding). Thank you, Chairman Train.

The Chair would like to start out by asking Dr. Willard if she would like to make a statement first.

I believe, Senator Dominick, you have made your presentation.
 Senator DOMINICK. I already have, Mr. Chairman.

STATEMENT OF DR. BEATRICE E. WILLARD, NOMINEE TO MEMBERSHIP ON THE COUNCIL ON ENVIRONMENTAL QUALITY

Dr. WILLARD. I would briefly like to say how delighted I am to be nominated and appointed to this very high position. It is a deep honor.

Interestingly enough, when the first Council was appointed, I was among its various critics, mainly because it has no biological expertise on the Council itself, and as the staff developed there, little did I ever dream that I might have an opportunity to personally add to that expertise.

The reason I was concerned was not egotistic at all, but it was because of my 20 years of professional work as an ecologist and biologist that has made me realize how fundamental was the understanding of the complexities of life in the living systems of which man is a part, whether he likes it or not, and the understanding of the basic principle—and I put in parentheses, and I don't intend, Mr. Chairman, to be snide with the parenthetic statement, but the overriding principles which are not the same as laws that govern life over which you and I have no control.

It has been my experience in the last 8 years to see how very quickly and incisively the understanding of these principles of life can lead decisionmakers to wise decisions about environmental problems, once they really understand them.

I think, one, Mr. Chairman, was the experience that we had when we had your assistant, the minority leader of the committee, who is not going to be with us today, Senator Allott, on the grounds about 20 minutes in 1968 when we were trying so desperately to get fossil beds established. He had studied under Dr. Cockrel, he had heard about fossil beds all his life, longer than I had, and yet when we could quickly and incisively show him the facts of why we wanted 6,000 acres and not 1,000, he quickly understood the importance, scientifically, of that request, and helped us, as you did.

This is just one of many examples I could go into, and I would be happy to elaborate if you would like.

I was born and raised in very close proximity to the wilds and the mountains and streams of our Nation, closer to those than to people. This doesn't mean I am not close to people, I like people. But this was a very rare opportunity in California, in the deserts and mountains, to know intimately some of our own living systems.

Since that time I have had adequate opportunity to know the systems of North America and Europe. With this knowledge, I founded the seminars on environmental arts and sciences in Aspen in 1967, and to date 600 or more top-level decisionmakers, including something like 12 top generals of the Corps of Engineers have been to these seminars, along with many citizens and students and minority groups.

The overwhelming consensus of these people, by their own admission, is that they never dreamed the living system was so interesting, complex, and delicate.

With this high appreciation and ability to know where to find additional ecological facts and understanding, many of these men

and women have gone forth and made major changes in their activity as affecting the environment. It is with this knowledge and experience I am humbly appreciative of the opportunity to appear before you this morning.

Chairman JACKSON. Thank you for a very fine statement.

The Chair would like to say you have had a most impressive career, and certainly come to the commission with a distinguished academic background as well as a lot of experience. I am very much impressed with your outstanding record, Dr. Willard.

I will just ask this general question. We will discuss in executive session the financial statements, but do you have any holdings that you feel would be in conflict with your responsibilities?

Dr. WILLARD. No, no; not at this time.

Chairman JACKSON. You are, of course, completely familiar with the National Environmental Policy Act. I need not ask you your duties as a member of the Council in that regard.

Dr. WILLARD. Well, I am sure I will gain additional familiarity.

Chairman JACKSON. I mean, you are familiar with the statute itself?

Dr. WILLARD. Oh, yes; I have studied it. I have used it.

Chairman JACKSON. You have appeared in service—to determine what it would be like—

Dr. WILLARD. I have worked on the other side of the environmental impact statement, two statements for clients.

Chairman JACKSON. Well, you will bring some interesting contrast, I am sure.

Now, Mr. Busterud, we would be delighted to hear from you, any general comments that you would like to make.

STATEMENT OF JOHN A. BUSTERUD, NOMINEE TO MEMBERSHIP ON THE COUNCIL OF ENVIRONMENTAL QUALITY

Mr. BUSTERUD. Thank you, Mr. Chairman, and members of the committee. I am indeed honored to have been selected by the President for membership on the Council on Environmental Quality.

Chairman Train and Dr. MacDonald, and of course, Mr. Cahn, the outgoing members of the Council, are to be congratulated for their outstanding work in translating their mandate into the National Environmental Policy Act into a viable and workable effective program for action. I think theirs has been a difficult and sometimes thankless task, and I have actually seen them at work many times in connection with my duties across the river, and the task has required imagination, leadership, and strong congressional support, and fortunately they have had an abundance.

As a result of these efforts, NEPA has become an increasingly effective force in Government decisionmaking, and many of their environmental programs have come into being also. Yet I think a great deal more remains to be accomplished. Our attack on pollution must become increasingly sophisticated. Our efforts to improve the quality of life must go well beyond the mere physical cleansing of the atmosphere, the land and the sea.

I view the Council's role as one providing important long-range planning and leadership in the environmental struggle, and making available to the President the best possible thinking on this subject of

continuing to review agency compliance with NEPA procedures, and of developing recommended programs to meet our pressing environmental needs.

Now that our initial goals are being reached as a result of the work of the present Council, I believe we must expand our efforts to seek out new ideas for the scientific and lay community for improving the quality of life. We should also increasingly turn toward the expertise that now exists in the Federal executive departments for assistance in solving environmental problems.

Many difficult decisions will face the Council in such areas as land use, planning, and energy and materials policy. We must be both far-sighted and realistic as we face these problems.

I am pleased to be able to play a small part in this effort, and I certainly look forward to working with Chairman Train and Dr. Willard in discharging these heavy responsibilities.

Thank you.

Chairman JACKSON. Thank you, Mr. Busterud.

I, too, want to say as I just mentioned to Dr. Willard, that you come to the commission with a very distinguished record of service, outstanding scholastic record, and I take it, a long and continuing interest in the environment and conservation, ecology, and so on. And I assume, too, that you are familiar with the statute in the National Environmental Policy Act, and the duties and responsibilities of that office?

Mr. BUSTERUD. That is one of my principal present duties in my job now. I am quite familiar.

Chairman JACKSON. While we will discuss the matter of financial holdings in the executive session, the members of the Council will be present at that time, do you know of any interest that you have that would in any way be in conflict with your duties and responsibilities under the law?

Mr. BUSTERUD. No, I don't, Mr. Chairman.

Chairman JACKSON. Dr. MacDonald, we are delighted to have you here. We are sorry to note the departure of you and Mr. Cahn. You have rendered great service, and I wonder if you would like to make any comments at this point, before I call on my colleagues for questions.

STATEMENT OF DR. GORDON MACDONALD, MEMBER, COUNCIL ON ENVIRONMENTAL QUALITY

Mr. MACDONALD. Thank you, Mr. Chairman, for giving me this opportunity. I would like to use it to basically thank the committee for the opportunity to work with them. It has been a very great pleasure.

I have found the experience of working on the first Council the most challenging experience of my life. I have also found it the most rewarding experience of my life. I think the Council has accomplished a great deal in its first two and a half years. I look forward to further accomplishments with these two new distinguished members of the Council.

I join Mr. Train in endorsing their nominations with great enthusiasm.

Again, Mr. Chairman, I want to thank you and your colleagues for the opportunity to work with you.

Senator JACKSON. On behalf of the committee, I want to say how much we appreciate your outstanding service, and Mr. Cahn and I want to wish you both well in your new undertaking.

Senator Anderson?

Senator ANDERSON. No questions.

Chairman JACKSON. Senator Jordan?

Senator JORDAN. Thank you, Mr. Chairman.

I have had the privilege of a personal call from both of the nominees, and I have met Dr. Willard for the first time when she came into my office. She had a very impressive background, and we had a very pleasant and productive conversation.

John Busterud is a man whom I have known back through the years. He is an alumnus of my alma mater, although I preceded him by more years than I would like to remember.

I think it is important, reference has been made to the policy and goals of the National Environmental Policy Act, and I think, Mr. Chairman, if you will indulge me, I will just read the first paragraph into the record so that people looking at the record will know what we are talking about, rather than by reference.

Here is the declaration of the National Environmental Policy Act, section 101(a):

The Congress, recognizing the profound impact of man's activity on the inter-relationships of all components of the natural environment, particularly the profound influences of population growth, identity, urbanization, industrial expansion, resource exploitation, and new and expanding technological advances, and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal government in cooperation with state and local governments and other concerned public and private organizations to use all practical means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.

I have always been impressed by the policies and goals of this current Council, and I think it is important to have it here, your reaction to the statement I have just read, if you can subscribe to the goals and policies that we have outlined in this legislation, Dr. Willard.

Dr. WILLARD. I was reading this as I was coming on the plane Tuesday night, and I was impressed with the fact, and I don't want to sound egotistic in saying this, but in fact, the goals of the seminar that I have mentioned, and the goals of the institute from which I have been working for 8 years are almost identical. Therefore, the work of my past 8 years has paralleled the National Environmental Policy Act, and this is pure coincidence because I had absolutely nothing to do with the writing.

So, it is a pleasure that I have, we might say, inadvertently had 8 years of practice in doing exactly what it is talking about.

Senator JORDAN. Thank you.

John?

Mr. BUSTERUD. Senator Jordan, I think it is very appropriate that you have read that preamble, because I think all too often we tend to think in terms of NEPA as being something that requires procedural compliance with certain requirements of the law, and I think that it is a healthy thing on this occasion and on many occasions to

remember that it goes far beyond that in that it requires adherence to the spirit of the law as well as the letter, and we are trying to do that in my present work, and sometimes to certain degrees of frustration, but I think we as a nation have to follow the spirit or we are going to be in serious trouble.

Senator JORDAN. Thank you. I have no further questions.

Dr. WILLARD. Senator, could I add that I am very happy to hear that from my colleague, because one of the frustrations of ecologists is the technicalities of the law, often, in which the living system often gets inadvertently enmeshed.

Senator JORDAN. Thank you.

Chairman JACKSON. Senator Moss.

Senator Moss. Thank you, Mr. Chairman.

I am very pleased to note the qualifications of the two nominees who are here before us today, and I do welcome them to this new position that they are assuming. I do not personally know either one, but I have been reading through the résumé and materials furnished to us, and it appears to me that you both are eminently qualified, and both have very strong records of experience in the area of environment where you will be expected to function.

Now, Dr. Train, we have been most pleased in this committee with the fine work done by the Environmental Quality Administration and we look forward to having you there.

I note, Dr. Willard, that you are chairman of the Denver Olympics Planning Commission, and also chairman of the Rocky Mountain chapter of the Sierra Club. Is there any conflict in that?

Dr. WILLARD. Well, the chairmanship of the Rocky Mountain chapter of the Sierra Club was in 1965. I was the first chairman of the Rocky Mountain chapter, and have not served on their executive committee for some time.

The only conflict I find, and it is always a regrettably sad one, is that my colleagues in the environmental movement don't understand ecology as well as I, and I don't fault them for this. They have had the same opportunities. I illustrate this by an experience I had in 1948 in Yosemite Valley when I was in the Yosemite field school in training for being a ranger naturalist, and at that time the people in the valley were fighting with the Park Service because the Park Service wouldn't dredge out Mirror Lake, and, of course, the Park Service said our mandate from Congress in 1916 was to maintain this segment of landscape so that it could function as a unit in the way it always has, and of course lakes are destined to be meadows, and meadows are destined to be forests. They always have, for millions of years, and the dynamics of the landscape is something with which the ecologist is day-to-day working and fascinated with, just fascinated, and they somehow want to stop time, and they would have probably stopped the extinction of the dinosaur and the evolution of man.

So, I do conflict with them.

On the Olympic question, I had to work and pray, frankly, long and hard before I accepted that nomination because it was a very controversial issue, and I wanted to only undertake it if I felt I could contribute to it, and I—they sent the brochure about the Olympics with the nomination, I opened it up and read it, and of course I was familiar with the history of the Olympics before the birth of Christ, but I wasn't familiar with the current ones, and of course, about the third

sentence says the purpose of the Olympics is to express human perfection in mind, body, and spirit. You can't fault that, and I felt we had just passed a State law for a land-use commission which was to help in land-use control, and I thought, well, now, why can't we project that purpose just one more step and say, as the National Environmental Policy Act does, "and in the expression of man's harmony with his environment," and hopefully help to get this expressed in our State in doing this noble thing.

I am still working hard at this. I have 2 more weeks before I am sworn in by the President. I hope I am able to put some final nuts and bolts together to get this committee, which has gone through all kinds of agony, much too long to describe to you, into shape before I have to resign as chairman. I am cochairman at the moment, as of 2 weeks ago, with Wally Schirra, and hopefully a spaceman can keep that thing on track.

Senator Moss. I appreciate your response, and it accords with my view. I brought this up because we are confronted so often with the so-called stand-pat ecologist that doesn't want to turn over any rock or even walk in a stream because some way or other that seems to defile it, in their view, that man never touches anything.

Dr. WILLARD. Are you sure that they are real ecologists?

Senator Moss. Well, I doubt it, and I have clashes with them because we are dealing all the time with wilderness areas and national parks, and other things in this committee, and some of them, you know, constantly complain if there is anything done with the environment at man's direction, and I, of course, don't believe that. I think I am as good a conservationist as anybody. I think we ought to preserve the environment, but it requires, it seems to me, intelligent and objective use of the environment. It has to be useful to us.

Dr. WILLARD. Well, we can't keep from impacting. We would have to stop breathing.

Senator Moss. Of course.

Dr. WILLARD. And the thing in my mind that we have to reach is a knowledge of the degree to which we can move around without absolutely destroying. I was talking with Mr. Atkinson, who brought me up yesterday to meet some of you, and to me, the thing that John Stuart Mills said to us about liberty, and of course he was talking about human liberty and the human system are equally applicable today in 1972 to our liberty with all living things, that we can go just so far as we don't disturb their ability to live.

Senator Moss. Well, I appreciate your expression of philosophy. I would like to pursue it, but of course I have many colleagues who may have questions.

I also want to welcome Mr. Busterud.

A man that can take on the job of Assistant Secretary of Defense for Environmental Quality is a very brave and able individual, and I am sure can serve well on the National Environmental Policy Administration, and I welcome you.

Mr. BUSTERUD. Thank you, Senator.

Chairman JACKSON. Thank you, Senator Moss.

Senator Hansen.

Senator HANSEN. Thank you, Mr. Chairman.

I am sure there is no demerit today with any concern of regard for the future of our children and who can be oblivious to the need for

strong environmental concern by every human being, whether he be an American or whatever he may be.

I am pleased that Senator Jordan read the preamble to the act as he did, and just in a little aside, a moment ago he underscored these lines, "Under which man and nature can exist in productive harmony."

I think it is well, too, that we note that word "productive" in there, because our standard of living, the things that we have accomplished, the things that we hope may be possible in the future to accomplish will be determined by our ability to measure up to the task that is implicit in that preamble.

I, first of all, Mr. Chairman, would like to compliment the President on the fine selection of candidates who appear before us this morning. I, too, have read, as other members of the committee have, their backgrounds. They certainly come well recommended. They are highly trained and skilled in every respect, and I think the choices are excellent.

But I would, if I may, like to pursue some practical questions, not at all because I have misgivings as to what your attitudes may be, but rather to seek your advice and counsel and opinions as to what might be reasonable answers to some tough questions that are before us now.

So, if I may, Mr. Chairman, let me state a proposition and then follow that with a question or two.

Perhaps one of the greatest arenas involving problems of serious environmental consequences is that of the production of energy. Economists are predicting that by 1985 the United States will be 50 percent dependent upon foreign sources of oil. Most of the imports will be coming from the Middle East and Africa, North Africa. All of the major oil exporting countries belong to a tough-minded producer's cartel, the Organization of Petroleum Exporting Countries, or OPEC, as it is known for short. Some of its members, Libya, Algeria, have already begun to nationalize the oil companies operating in their territory. They say to the oil companies, what was yours yesterday is ours today, and they simply expropriate the assets. Others have used slightly less drastic measures, such as substantially rising prices.

OPEC is presently demanding 51 percent equity participation in the oil companies. That is, obtaining control over their operations, beginning with 20 percent equity participation in this year, to be followed by a 51 percent share by about 1980.

On page 70 of this week's Time magazine, an article devoted to this problem concluded that the United States and other countries "may well be forced to make the best of their great reliance on oil by rethinking on many of their national policies. This could include making tax and environmental laws more, not less, favorable to domestic drilling."

My question to you, Mr. Busterud, is, would you care to comment on the conclusion reached by Time magazine?

Mr. BUSTERUD. Senator, I would be happy to make a statement with respect to it. I have not actually seen the article myself.

I, however, would concur in one part of the article, and that was that we should be rethinking our national policies in this whole material area. The question of use of domestic materials versus foreign materials, whether it be oil or other precious resources of ours, is a complex one, and I really would like to have the opportunity to give

a good deal of serious thought to it before I make any specific comments on what solutions might be today.

I think that you would think less of me if I were to, in effect, shoot from the hip on it this morning, and I would like to ask your forbearance in that respect.

But it is complex. I am concerned myself with the attitudes expressed by some of the nations, and I think we should be thinking about our long-range problem and our solution in protecting ourselves against the future.

Senator HANSEN. I would be interested in both your observations on the Trans-Alaska Pipeline, but I don't have any questions to pose that would be sufficiently specific to serve my purpose, nor to treat you fairly, so I will forgo that.

But if I may, turning to you, Dr. Willard, as more foreign oil continues to flow into U.S. ports, and in order to help solve the energy crisis, moving the oil in small tankers cost more, and the industry wants to carry it in supertankers to keep costs down. But the United States does not have a single port capable of accommodating the giant tankers.

There has been resistance on environmental grounds to the construction of deepwater ports, and to the construction of new refineries to process both foreign and domestic crude.

Do you have any thoughts, Dr. Willard, on what we, as a nation, should be doing with respect to the development of deepwater ports and the construction of new refineries?

Dr. WILLARD. If you would permit me, Senator, I would like to back up and encompass that question with the one you asked Mr. Busterud, because to me, and I know I would, as he has, say that I certainly want to give very deep thought to this, and you have many more facts before you, but the thing, last year I had to speak before three groups, or really more, in which I—the Rocky Mountain Gas Association, a special seminar at the University of Arizona on law and pollution, and the Rocky Mountain Geological Society of America, and the Wyoming Mining Association, on just this topic, among other things, and the thing that keeps hammering at me as a scientist is that there is a very basic fundamental principle about which we cannot run, and that is, all energy runs down, disappears when it is used. It doesn't matter what form it is in, and fossil energy fuel, once used, is never recovered, except by that slow process with which it is now presently being formed in bogs and things of this sort, ocean bogs and so forth. I am not sure we even know. Dr. MacDonald can probably help me out here. I don't really know the rate at which it is being formed here today.

Therefore, to me, we should have a very fundamental policy of using every bit that we use frugally, and wisely, and using those sources of renewable energy, like the tides, winds, sun, recyclable in a sense, not really recyclable because it never comes back, but at least that we have and we can't do anything else with. I think it is especially important as you know we have these horrendous winds which we wish we could harness and get rid of a little bit of that energy, and do something constructive instead of destructive.

One hundred and twenty mile an hour winds hitting the side of a small house like mine are far from pleasant.

This doesn't implement what you are looking for, and I hope that within the next few months I can help you more.

Mr. TRAIN. Senator, could I just mention that I don't think either Dr. Willard or Mr. Busterud probably know about this, out of fairness to them I would like to mention on the record that the Council does have underway—the Council on Environmental Quality has presently underway a major study of supertankers and their port facilities, with relation to the environment, which is really addressed to the kinds of questions you are trying to get at, and I don't believe they probably know about this.

Dr. WILLARD. No, thank you.

Senator HANSEN. Thank you, Dr. Train.

With respect to coal, our most abundant fossil fuel resource, we are confronted with a most ironic situation. We have enough of it to last several hundred years, according to the best estimates I read, and therefore, in the immediate future we certainly don't need to import it. Thus, coal is the primary fuel which presents absolutely no national security or balance-of-payments problem.

Yet, although the U.S. Geological Survey estimates that 200 billion tons are recoverable under current technological and economic conditions and only 603 million tons were produced in 1970.

Concern for the health of miners, the need to cut down on air pollutants, has run the cost of coal production and limited its availability.

Low sulfur coal is in short supply in Eastern States, while low sulfur western coal costs more to be delivered to eastern users because of high transportation expenses. But about one-third of our recoverable coal has a sulfur content too high to meet current standards.

Strict new strip mining regulations in the State and Federal levels are certain to impose higher costs and physical constraints upon the low sulfur coal resources in both the East and the West.

I would ask you, Dr. Busterud, inasmuch as coal is our most important resource which presents the Nation with no problems regarding national security or balance of payments, what ideas do you have, do you think would be appropriate to express here concerning how we as a nation can make the best use of our coal resources?

I address that question to you, because as you know this committee and the Congress very shortly will be trying to come to grips with a very real environmental problem.

Mr. BUSTERUD. Yes. I should preface my brief remarks by saying I was born in a small town in Oregon, in Coos Bay, which was underlain by a low grade bituminous coal deposit, and we grew up burning that coal in my home, and indeed long before I was born that coal was used to supply San Francisco in the early part of this century. So, I am well aware, I think, of the needs and the value of that coal in our economy, and I agree with you, sir, that I think this is one of our abundant resources and I think that we must find ways to make use of it increasingly as we become shorter in other energy resources.

I was in Fort Lewis last week inspecting the environmental programs there, and I was very interested in hearing a briefing about a plant that is being constructed at Fort Lewis which will provide for the washing of coal chemically and will produce briquets—it is like briquets—that are burnable in a clean way, and I think that this kind of technological advance gives us a great deal of promise for the future use of coal, compatible with our environmental laws, and

I am not technically conversant with the gasification processes myself. Of course, I am looking to my colleague here, our scientist, for some assistance in that area, but I do feel with the gasification process, if not economical today, will become economical in the early future, and I hope that the Council can do some work to encourage scientific inquiries in other ways to making use of this viable resource.

Senator HANSEN. Thank you.

Dr. WILLARD. Could I add a footnote there about that I understand that in Germany that they are, in fact, economically, commercially using coal gasification through what they call the Livy process. Now, I don't know anything about its pollution problems yet. I am just starting on the project on that.

Chairman JACKSON. Well, we have to do a lot more than what we have done to date. We need to build large prototype plants, I think. We are not moving fast enough. I don't know whether we can gasify coal without creating environmental problems after the gasification takes place. All I am suggesting is I think we have a lot of work to do, and we really have to push this effort. We have about a trillion tons of coal in this country, in reserves, approximately.

Unfortunately, from a transportation standpoint, the bulk of the low sulfur content is in the West, but I agree with you, Mr. Busterud, it is a great opportunity here. It is like a lot of problems, including the far more superior nuclear reactor program that made that effort in the energy field. The opportunities are everywhere, and I know the pretty fine people that we have serving in advisory capacity—I think their colleagues have to keep this in mind, they are advisers, they are not in—but that advice can be extremely important because you are serving at the summit, and we expect big things from the summit.

Senator BURDICK.

Senator BURDICK. Thank you, Mr. Chairman.

The résumés of both of you are very impressive, and I am pleased to support your nomination. I was also very pleased to have your views that you expressed to me in my office yesterday regarding one of our great natural resources, to wit: clean lakes.

We hear so much about Lake Erie that we forget that we have fresh water lakes in this country. They are an enormous benefit, economically, socially, and every other way to this Nation. They are in the process of dying, and I was very pleased to hear you say that you are concerned with that, too.

On the point raised by Senator Hansen, it covered some of the ground that I intended to cover. We could be on a collision course. This committee has heard testimony regarding the crisis of energy, and it is a real crisis, and of course we have got some of this crisis in the ecology, too.

To ameliorate it, how do we handle it? I will give you an example. The eastern seaboard this summer, we had brownouts, in some cases some blackouts, because the electrical supply wasn't adequate to meet the demand. Yet I have been told that the production of electrical energy there by various means other than fossil fuel methods, with atomic energy, will discharge more warm waters into the rivers and kill the fish and wildlife.

Now, there is a collision right there. Can either one of you, or both of you, speak to this question. This is immediate, this isn't long-range heredity thing, this is here.

Dr. WILLARD. I am smiling because yesterday I was speaking to John Whittaker at the White House on just this point, and while I was doing so I was going about the room turning off about two-thirds of the lights which we didn't need, and I can't quite reach them as easily in this room, but I am impressed every time I go to your State, Senator, of New York and other places, how much light we use that we don't need.

I was born and raised in the mountains of California where we used Coleman lanterns and kerosene and candles and things. I am not exactly eager to go back to that, but I do think that we could be a bit more frugal.

I remember World War II very well, and voluntarily we used much less of everything, and I am not saying we should go back to the pauper state, but I think we ought to—we don't have to act like—what is a good analogy, you know, just because we have got it we are using it all at once.

Senator BURDICK. But our population increases, we are selling electrical toothbrushes, we are going into everything electrical today.

Dr. WILLARD. This is true.

Senator BURDICK. People might turn off a light or two, but we are still going to have the collision, we are still going to have the problem.

Dr. WILLARD. I don't know, because I haven't done the calculations, and Dr. MacDonald is going to have to help me on this. He is the physicist in this crowd. But I can't help but believe that if every one of us used less, there couldn't be but more for everybody to use in the future. I mean, this makes sense, commonsense.

Mr. BUSTERUD. Senator, I read with some interest the other day the article in the Wall Street Journal—perhaps you saw it—on the lighting problem in this country, and I was interested therefore in what my colleague has to say on that subject, and I do share some of her feelings that we can do a better job by in some way or other capturing the imagination of the people in this country on the conservation of energy in certain situations where the energy use is not essential.

On the other hand, I share your feeling that the demand for energy is going to continue to grow in this country despite all of our efforts at economy. This could change. Perhaps we will become a more stable, static economy sooner than we think, but it doesn't look that way now, and I think that this Congress has had to wrestle on many occasions in the past with collision courses. I have great faith in the parliamentary system that we have in this country to cope with these conflicts. I think they have to be solved, and of course the President is in a position, as the particular leader of this country, in which he must come up with policies that will try to solve this conflict.

It is our job to try to give him the best possible advice we can, and, as I mentioned in my opening statement, our advice has to be both farsighted and reasonable.

I think we can't—no one segment of opinion in this country is probably going to prevail completely in this energy situation. I think we must develop sources of clean energy sooner, perhaps, than we are planning on doing so now.

Senator BURDICK. Well, when we double our consumption of electrical power—they say it doubles every 8 years—you are not going to solve it by turning off a light or two.

Mr. BUSTERUD. No. I feel we might cut down the doubling rate somewhat, but the growth rate is still going to be there.

Senator BURDICK. But I agree with the doctor, we could cut off a few lights, and I do it in my home, but it is not too much of a success.

Dr. WILLARD. If everybody did it, it would be, what, 210 million lights.

Senator BURDICK. That is right.

Dr. MacDONALD, I want to say goodbye to you. Thank you for your services in the last two and a half years, and I wish you well in the future.

Dr. MACDONALD. Thank you, Senator.

Senator BURDICK. I have one more penetrating question for Mr. Busterud.

Was Dr. Clarence Deares coach at the University of Oregon when you were there?

Mr. BUSTERUD. You know, that name is very familiar to me, but I must say he was slightly ahead of my time. I remember listening to some games in which he was involved.

Chairman JACKSON. I think the question raised earlier by Senator Burdick is probably at the heart of the environmental problem. I think it portrays the difficult choices that we have to face; that is, energy. We need energy to clean up the environment, so it is kind of a circle, and I think we all have to be pragmatic about this challenge that we face, and it is one thing that is certain, and that is that we are going to pay more for everything, and we won't be able to clean it up, won't be able to do the things unless we do pay more, and this is a matter of leadership in selling the program.

Senator Bellmon.

Senator BELLMON. Thank you, Mr. Chairman.

Along with some others, I arrived in Washington about the time all this environmental crisis began to surface, and I want to say that I feel that in the time that I have been here I believe we have made some real progress, and certainly the CEQ and other action taken should and can claim a great deal of credit for what has been done. I am very pleased to see that we have such well qualified applicants for appointees for this job, these nominees, and it indicates that the administration is continuing toward this dedication toward correcting our environmental problems, and I am sure that these nominees are going to do a great deal to help out.

I want to ask you a couple of very brief questions, because I know we are under pressure for time.

There have been some comments made about how this country should adopt a policy of zero growth. I wonder if each of you could comment on this concept.

Dr. WILLARD. It is a very fundamental concept in ecology, it is a principle, and as we study the units of the landscape which we call ecosystems, or living systems, they all come to a point which the population is stabilized. Now, that isn't zero population growth particularly, because it is just like the cells in your body, you know, that turn over every 7 years, and you are a totally new body, except for

your nerve cells every 7 years, but still you look pretty much the same to your wife, or otherwise she wouldn't let you in the house at night. And this happens with the ecosystem, too. When a tree falls over, there are a few other trees that grow into place, and when one animal, one wolf dies, there are others to take his place.

I often shock people, and intentionally, when I say that we are nicer to antelope, deer, buffalo, chickens, cows, and sheep, because we have worked out over the last 40 or 50 years what we call in ecology the carrying capacity of a pasture or chickenhouse, or range, such as Senator Hansen has in Wyoming, for these animals, and yet we have totally refused to admit that this principle of life applies to man as well as all other animals and plants, that there is a certain amount of productivity of the green things on the face of the earth that are the basic producers and there is a certain amount of productivity of meat and other things, and if we exceed this, we are going to have trouble.

Now, Paul Erlich, of course, has very succinctly put this forth in the "Population Bomb," and I am not sure that I agree with his frank conclusions that we are going to drop dead on such and such a day, September 1979—Dr. MacDonald might have a little better information on that than I, but yet as observable in other populations, we have had to go through it. That is why this astute body way back in 1932 passed the Grazing Act, because they realized that men without any of this understanding, with as many sheep as you could crowd onto the western ranges, and cattle, pretty quick there wasn't any range there to graze on.

We are, I think, going to have to somehow, now—I don't have any answers as to how; frankly, my basic philosophy in life is to try and get people to do things voluntarily, because this is the basic American approach to life.

Senator BELLMON. Mr. Busterud.

Mr. BUSTERUD. Yes. Of course, I have heard many of the comments on zero population growth, and zero approach generally, and I was educated as an economist before I became a lawyer, and one of the first things that occurs to me is the great complexity of the simple solution of that kind.

At a time like this, it seems to me, with the great many economic problems this country has, that for us to adopt without question the 100-percent program of that kind would be probably unwise. I believe that gradually the natural laws are going to bring us closer to a zero growth situation, and I think we have seen some evidence of that.

Perhaps in my State of California, I notice the population trends recently, and in some of the other States, that have had more rapid growth than in years past, but I do think that there is a limit to what this earth can support, just as Dr. Willard has said, and I think we have to gradually work toward perhaps a less rapid growth rate to be sure that our growth rate in the years ahead is going to be supported by the ecosystems of the world.

I think there are many sociological problems also that are connected with zero population growth, and ideas of the world on bearing children have to change a great deal, and I don't anticipate that happening overnight. But I think certainly we must recognize that the earth is, in effect, a dying planet through natural laws, and we are probably not going to be able to change that a great deal, and sooner or later the population on the earth and the economic development on the

earth is going to reach a point where the earth won't support it, and I think we have to be on top of that situation to the best we are able at this stage in the 20th century, so that in the 21st and 22d centuries, the problem doesn't greet us so rapidly and catastrophically that we destroy ourselves.

Senator BELLMON. Do you take the position, then, that we can have growth and improve the environment, or that we cannot?

Mr. BUSTERUD. I feel we can. This can't be an across-the-board answer, because there are certain parts of our country where growth is probably very desirable, whereas in other parts of the country it is less desirable. The area, for example, around San Francisco Bay, around Los Angeles, these areas are getting quite saturated with people, with the machinery, with pollution. On the other hand, there are great acreages in this country that need growth of some kinds, selective growth, in order to support the populations to the higher standard of living, because I think we have to still bear in mind that environment means different things to many people.

In different parts of the world today environment means a good standard of living for an agricultural worker, for example, and not necessarily pollution control plants.

Dr. WILLARD. I would like to add something to this, if you wouldn't mind, because it bears so directly on the very name of the Council to which we have been appointed.

I had occasion—I am not really sure why they gave me this topic, but I had to speak in Grand Junction a couple of years ago on Earth Day on "Is growth always progress," and that you know, we had better go back to the dictionary and find out what those words meant, and I looked up growth and growth, of course, one meaning is an irreversible increase in numbers.

Another definition is a development toward perfection, and I am wondering if the second isn't much more in keeping with the American ideal. And if economically, and I would like to really, you know, tie into this one someday, if we couldn't economically be even better off if we were working on quality in everything than in quantity. I don't know. I am no economist, and I am looking forward to working with Mr. Busterud on that point, because I need to know it because it comes from the same root as ecology, you see, and it must be a very integral relationship between the two.

Senator BELLMON. I would like to exploit the question briefly. It seems to me that the interests on coping with environmental problems is centered largely in Washington, and I realize you are both rather new on the scenes with the environmental policymaking, but do you see a role for the States and perhaps municipalities in coping with our environmental difficulties?

Mr. BUSTERUD. Well, Senator, if I may be the first to comment on that, I certainly do, and I feel that in a way I have played some small part in that role before I came into the government, in being part of a number of voluntary citizen groups, for example, that have literally moved mountains or in some cases prevented moving mountains. The citizen can be a very effective force when he bands together in groups, and I think this is a way that our country can do great things environmentally speaking.

I agree with Dr. Willard that to the greatest extent possible, our approaches in this area should be on a voluntary basis, but this is going

to require, of course, a great deal of education. Many of the States are developing little amoebas, they are developing air and water pollution control laws. Of course, California, at the time I was in their legislature, over 10 years ago, had, I think, the first air pollution laws on the books. And I think the position or the role, the proper role of the States is to be a little bit more experimental in this area than the Federal Government.

When the Federal Government takes action, it is a massive kind of an action. It kind of closes the door sometimes on future experimentation. But when a State does so, it can try it out and if it doesn't work we haven't committed our whole Nation. So, I think there is a very important place for the States in the environmental control area, as there is in many other fields.

Dr. WILLARD. There is an even more important point here, though, from the standpoint of ecology, because each major unit or landscape is very defunct in the way it functions from each other, and the way that grasslands function, the physical and chemical environment is completely different, as you well know, having lived there, than the one which I am most familiar, the alpine tundra, and I could go on ad infinitum.

In going through one of them, the things that I am most delighted about personally, and disappointment, it is going to bring them in close contact with the one ecosystem of the nation I have not had familiarity with, the forests, and one never knows these systems adequately to make decisions about them until you live in them, and who lives in them, the people of the States, not the people in Washington. We live in an ecosystem, we live next to estuaries, and we can make decisions about those if we are, in fact, actually going out and experiencing them.

I have a favorite saying that extends Confucius. Confucius, you know, said that a "Picture is worth a thousand words," but the intimate field knowledge of the living systems is worth a million words, and you don't get that by sitting here in this room, unfortunately.

Senator BELLMON. Thank you very much.

Mr. Chairman, I have no further questions.

Chairman JACKSON. Senator Buckley.

Senator BUCKLEY. Thank you, Mr. Chairman.

I just want to say at the outset that I envy the both of you the jobs and challenges and opportunity that you have had. I don't envy you having to try to match the standards which have been set for you by your predecessors.

Time is getting short, so I will try to just limit my questions to one particular area.

Section 102 of the NEPA law states that Congress authorizes and directs to the fullest extent possible that, in assuming words, all agencies of the Federal Government shall, and it goes into the impact statement, mandates, and so on.

I would like to just ask each of you a question to focus on your own understanding or philosophy or approach to NEPA legislation. Let me start with you, Dr. Willard.

Do you feel that the NEPA requirements should be universal in their application, and by "universal" specifically include EPA?

Dr. WILLARD. I would appreciate it if you would augment that question just a bit.

Senator BUCKLEY. EPA being, of course, the Environmental Protection Agency—in other words, ought this fundamental bedrock of our governmental approach to environmental problems have exceptions made for it, even for agencies charged with improving the environment?

Dr. WILLARD. No not at all, because I have been quite disturbed—not being a lawyer, I don't understand it nearly as fully as you would, but I have been quite disturbed by some of the recent court cases on this, and one especially that I represent, and—but I might again come back, I might sound like a broken record by the time we get to the end of the morning on this, but I have been so impressed with how utilitarian the principles of ecology are in the regard to this, and with my clients I emphasize one point, not in disregard for law, not in looking always at the technicalities that either CEQ or the area of land management or Forest Service, or something as set out as to what should be an environmental impact statement, but answering the question adequately, what does this action that you are proposing do to the operation of a living system?

When we have adequately answered that, and it is a big job, and we don't have nearly enough data or enough research yet to answer it usually, in most cases. We could answer all the things we see automatically, and if we could honestly say that we are not inordinately disturbing the life of all the other living organisms, and we can still put a powerplant or whatever it is, can we take care of the area of NEPA.

Senator BUCKLEY. Thank you very much.

I would like to ask the same question of Mr. Busterud, in this context.

The law says to the fullest extent possible. Mr. Busterud is just emerging from one of the more sensitive departments of our Government. To what extent do you feel that security interests and others should be interpreted as a limitation on the compliance with NEPA requirements?

Mr. BUSTERUD. Well, in the first place, I would like to say in response to that, Senator Buckley, that my philosophy in the Department of Defense has been that the burden of proof has to be on the national security interests very strongly if a particular agency in the Defense Department feels that there should be any kind of exception to its treatment.

I see no reason why, in the great majority of cases, the two interests can't be compatible with each other. In fact, I found several instances in the Defense Department where that has been the case. For example, the aircraft emissions was all to the good from a tactical point of view to cut down on particular emissions from an aircraft, at the same time resolving an environmental problem.

I do find that there are very, very rare situations where due to national security interests the environmental impact assessments or statements, of course, can't be made public in the usual sense. I think there has to be a reasonable way in which they can be handled by filing with the Council and having a limited review of them to the greatest extent possible.

But in probably 99 percent of the cases I see no reason why the Defense Department should not, just as any other department is

required to do, go through the NEPA procedure, prepare assessments in all cases where there is the remotest possibility of an effect upon the environment, and file the statements in support of their programs and their operations.

I think that was responsive to your question.

Senator BUCKLEY. The reason I asked the specific question was that I think we are in a new phase in this whole environmental struggle in this country. We had the enthusiasm that made the laws possible that we are now operating under. I think they were soundly structured. I fear now we are seeing an erosion, or an attempt at eroding their integrity.

I would like to think that both of you would be fighting to resist those movements. I know the time is short so I would merely close by saying that I am happy to see people of your qualifications stepping into the shoes that you are stepping into.

I can't help but express my own personal regret that Gordon MacDonald will be leaving the Washington scene, and I join the others in wishing him well.

Chairman JACKSON. Thank you, Senator Buckley.

We want to thank all of the witnesses, and again, Dr. MacDonald, we wish you well. We are very proud of your distinguished service.

The Chair would like to take this opportunity of commending the chairman, Russell Train, for his outstanding leadership, and what appears to be a most successful trip to the Soviet Union. I hope that we can have a session of the committee to discuss the trip.

Of special interest to me is the story in the New York Times yesterday about your trip to Lake Whitehall. I just want to commend you, and I speak for all members of the committee, in the fine way in which you handled yourself during the meetings at Moscow and the Soviet Union. I think you made a great contribution for a better understanding of—at least, this problem is not an ideological one.

Mr. TRAIN. Thank you, Mr. Chairman. I appreciate that remark. I returned last night, as you know. I am not too fresh, but the whole experience is very fresh on my mind, and I would look forward to and welcome the opportunity of meeting with you and the committee as a whole, if that were possible, to brief you fully on the whole operation, because I think it was a very positive one.

Chairman JACKSON. I would like to make that a first order of business when we get back.

We are sorry Senator Jordan won't be with us, but he will be in and out of here anyway, one of our real stalwarts.

The committee will stand in recess while we move into executive session.

(Whereupon, at 11:55 the committee was recessed, to reconvene at the call of the Chair.)

