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ROBERT F. ICHORD, Jr.

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INTERVIEW

Q: Good morning. This is John Pielemeier on June 9, 2023, beginning an oral history interview with Bob Ichord who has a wonderful history of working with USAID in several parts of the world.

EARLY INFLUENCES AND EDUCATION

Bob, how did you get into international development activities?

ICHORD: Thank you, John.

Q: And where did you grow up also?

ICHORD: Well, I grew up outside of New York City in Scarsdale, New York. My father was a lawyer and worked for Shell Oil Company, so I had energy in my blood from an early age. And he traveled a lot to Europe, and to Caracas, Venezuela. He didn't move the family due to the unrest in Venezuela, but he was obviously involved in international dimensions of the oil industry. My mother was an executive secretary and professional singer on the radio.

Q: Oh, really?

ICHORD: So, I got my love for music from her—and she was athletic too, she had been an alternate for the US Olympic track team. So, I got my affinity for sports and music from her. Anyway, I began to be interested in international relations at an early age, but particularly at Denison University in Ohio.

Q: So, where did you—you went to go to high school?

ICHORD: I attended a public high school --Scarsdale High School and graduated in 1965.

Q: And then you chose Denison.

ICHORD: Yes, I received my BA from Denison University in Granville, Ohio in 1969..

Q: Why did you choose Denison?

ICHORD: Well, Denison had a close affinity with our church in Scarsdale; and my brother and sister also went there, so it was a family affair. And there I met Dr. Louis Brakeman, Chairman of the Political Science Department, who was an alumnus of the Fletcher School of Law and Diplomacy at Tufts University in Medford, Mass. And he really got me interested in international relations and was a fantastic mentor. He headed a concentration within the Political Science Department on International Affairs which I pursued under a departmental fellowship. So, I followed in his footsteps, and I went to the Fletcher School after I graduated from Denison in 1969.

Q: You went directly?

ICHORD: I went directly to master's work at Fletcher. And of course, I was influenced by the Vietnam War issues at the time and wanted to learn more about Asia. So, at Fletcher I was lucky because I was accepted into a program called the International Development Studies (IDS) Program, which was funded by AID (United States Agency for International Development) and the Ford Foundation. So, AID got their money's worth from me.

Q: (Laughs)

ICHORD: And the IDS program included a summer of research in 1970, which I did in the Philippines. I was interested in energy, of course, but the focus of my work in the Philippines was on the politics of higher education. It was a very interesting time to work on this issue in the Philippines, with all the student protests; and remember, this was pre-martial law -- before Marcos's declaration of martial law in 1972 which led to his long tenure as President.

Q: Can you recall what year that was?

ICHORD: Yes, that was summer of 1970.

Q: Okay.

ICHORD: Yes, I started in the fall of '69 at Fletcher and did the overseas internship in the Philippines in the summer of 1970 before returning to complete a second year. I also took courses at Harvard with a famous professor of energy and economics named A.J. Myer, who further stimulated my interests in international energy issues.

So, I graduated from Fletcher in the summer of '71 with MA and MALD degrees and I thought about working for an oil company. But I said, "Nah, I'm not going to do that.

Q: (Laughs)

ICHORD: And so, I decided to continue my interest in Asia and went to the University of Hawaii and received a fellowship from the East-West Center. I don't know if you know much about the East-West Center,

Q: A little.

ICHORD: The East-West Center was championed by Senator Hubert Humphrey to foster US cooperation with Asia. It still exists today with congressional funding, and it supports U.S. and Asian students and fellows working together at the University of Hawaii in the various research institutes of the East-West Center. I was in the Technology and Development Institute while I was doing my PhD in political science at the University of Hawaii (Manoa). And it was fantastic in terms of intercultural interactions. For example, we had a cooking coop—people would cook different Asian dishes every night and stuff like that. I remember taking my PhD advisor to one of the dinners and I said to the cook,

"Don't make it too hot," but he was a Pakistani – the food was very hot, and my advisor's eyes were watering. But it was a great opportunity to really get to know different cultures because almost every Asian country was represented.

Q: What was your PhD in?

ICHORD: Political science, but I did my PhD. research on oil development in Southeast Asia. I focused on oil development from a regional perspective with Indonesia a key emphasis due to their role in oil industry history and substantial oil production. Some more radical views contended that the U.S. was in Vietnam because of oil, which I evaluated, was not the case – finding our involvement as driven more by the broader issues of containing communism. But nevertheless, I had an opportunity to spend a year in the region during Oct 1973-summer 1974, having affiliations with various local institutions in Indonesia, Singapore, Philippines, Thailand, and Vietnam before it fell.

It was an important period in the international energy world with the Yom Kippur War in October 1973 and the accompanying Arab oil against the United States. So, I arranged to visit OPEC's (Organization of Petroleum Exporting Countries) headquarters in Vienna on my way to Indonesia, which was important since I met the Indonesian representative who helped me line up an affiliation with Pertamina, the Indonesia state oil company. I had been studying intensive Indonesian at the East-West Center as one of the requirements of the fellowship. This really helped me as I was traveling around the country with Pertamina's support. I visited the historic oil fields in Sumatra and the new oil and gas areas in offshore Kalimantan. Of course, my Indonesia improved tremendously with the daily conversations.

So, that experience was obviously an immersive exposure to development and energy issues in a key region which is now one of the most dynamic and important energy regions of the world.

I received my PhD in '75 and moved back to New York.

Q: Slow down here. You were sitting in Hawaii while working on, drafting your PhD at the Center, and then presented it—usually it takes years.

ICHORD: Yes, I started in '71. The great thing about the Center was that I had a full scholarship for both academic and living expenses for four years, including the year in Asia.

Q: Right.

ICHORD: So, it was a fantastic program. I don't know exactly the parameters of current EWC programs, but it's still in business.

Q: Right. So, you presented your paper and defended it and didn't have any problems getting it—?

ICHORD: Yes, it went smoothly. Let me tell you a little bit about my dissertation advisor, Professor George Kent. My work with him is important to the way that I developed my analytical and policy framework for looking at the world, and which I used extensively in my positions in USAID and State. So, George was an innovative thinker. He had some monies from DARPA, to work on policy analysis and political design issues.

Q: DARPA is?

ICHORD: It's the Defense Advanced Research Projects Agency of the Defense Department. George produced several papers on what he called prescriptive policy analysis and political design. And it was a methodology that basically encouraged you to move through a process to develop recommendations starting from the way you defined the problem to analyzing possibilities, creating options, evaluating, and characterizing options, trying to really focus on where you need to make decisions when you're looking at a course of action. And doing sensitivity analysis, in other words, how sensitive is your decision on a recommended course of action to changes in the underlying assumptions. And you know, I mean, it's funny how things like that can stay with you for years, you know, in terms of the way you look at problems. And you know John from your work in USAID that we're constantly dealing with those kinds of questions, what are the best options here and why we want to pursue this option or this program or intervention.

So, I think that the other thing I would say is that the University of Hawaii had a diverse and highly rated political science department. Other faculty influences were A.J. Gregor, a guest professor who had written a book on *Metapolitics*, which was a very thoughtful presentation on the relationship between theory, data, and values; and Johan Galtung, a visiting Norwegian scholar who embraced both structural and actor-oriented theories of international development. So, these influences at U of Hawaii were key in shaping my conceptual framework and approach to subsequent work on international energy policy issues.

Q: Did you use that in your thesis, your doctorate?

ICHORD: Yes. I did, not necessarily rigorously, in terms of looking at the policy and options that the U.S. government was facing in Southeast Asia and the role of oil and gas.

Q: What was the title of your thesis, your doctorate thesis?

ICHORD: Southeast Asian Oil and U.S. Foreign Policy.

Q: And did you publish it later?

ICHORD: So, after Hawaii, when I went back to New York, I signed a contract to work on a book on Indonesian energy with Dr. Mangione of the University of Delaware, who was directing a series on energy policies of the world. And so, I wrote the book on Indonesian energy policy. I also did some consulting for the Hudson Institute; you may

have heard of it -- Herman Kahn's group at that time; he was the one that was predicting Japan's rise as a superpower.

I also did a little part-time teaching at Westchester Community College. But I was looking for a more permanent job. And so, I was lucky because I got in on the ground floor of the energy business in Washington in 1976 with a position in the international affairs office of the Energy Research and Development Administration (ERDA).

WORK AT ERDA-ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

Q: You said you got in on the ground floor. How did you get that job?

ICHORD: Well, I applied and also had friends that I knew who were working in the area from Denison and Fletcher; so, the connections were useful. I look now at the salary back then and it was a pretty low salary for a PhD. But it got me into the growing energy scene and at the intersection of foreign policy and energy technology. The Energy Research and Development Administration focused on research, development, and demonstration of energy technologies. ERDA, together with the Atomic Energy Commission and the Federal Energy Administration were folded into the Department of Energy when it was created in 1977 under Carter.

Q: Oh.

ICHORD: This experience was important to my career in the sense that it gave me an understanding of emerging renewable and other energy technologies as well as a chance to work and understand the international roles of other US agencies such as State, USAID, Treasury, and Commerce. I would go every week to the status briefings with the technical program groups on the new emerging technologies, and it included everything from solar, wind, energy conservation, batteries, and ocean thermal energy conversion. I didn't do much on nuclear power at that point.

This weekly exposure also gave me insight into how the US government was working with US companies and universities in the development of these new energy technologies. I was working for a wonderful scientist named Dr. Norman Brown. Norman had been working on renewable energy technologies for developing countries and had written a book for the National Academy of Sciences entitled *Energy for Rural Development*, which focused on the potential for these technologies in a development context. So, I learned a lot from him, and we in fact developed an MOU (Memorandum of Understanding) between ERDA and USAID to try to further the commercialization and deployment of renewable energy in USAID assistance countries.

Q: Excuse me. I forgot to mention we should try to spell out acronyms. MOU is Memorandum of Understanding.

ICHORD: We pursued a range of international programs during the 1976-77 period at ERDA before the Department of Energy was created in August 1977 by Congress and President Carter. We had some funds from the PL-480 program. Do you remember that program?

Q: Sure.

ICHORD: We used surplus PL-480 funds in countries like India and Poland for collaborative energy technology programs. We had non-PL-480 activities as well. Two activities I remember were cooperation with the Japanese in photovoltaics and with Brazil in alcohol fuels from biomass, both areas which have really taken off since 1977.

Q: Wow. So, this is using PL-480 Title I local currency?

ICHORD: Yes.

Q: Local currency.

ICHORD: Yes. But this of course limited what we could spend money on. Moving on, with the creation of the Department of Energy in 1977, I was assigned to the policy group in the Office of International Affairs, under Deputy Assistant Secretary Sarah Jackson and Office Director Marion Creekmore, who was detailed from the Department of State. I continued to work on developing country issues and was a lead DOE staffer in this sphere for activities at the International Energy Agency in Paris. After the oil embargo in the early seventies Henry Kissinger worked to create the International Energy Agency as part of the OECD (Organization for Economic Co-operation and Development), which occurred in November of 1974. It was controversial. France didn't join, but it was designed to try to deal with oil market threats and emergency oil shortage and storage issues. I participated in the IEA's non-member country committee that worked on north-south issues with both producing and consuming developing countries. Clearly, energy security issues were of dominant interest in this period. And it was interesting because President Carter's appointment of Jim Schlesinger's as first secretary of DOE was very important from that standpoint. You remember, Schlesinger had been both secretary of DOD (Department of Defense) and CIA (Central Intelligence Agency) director, and had a comprehensive, strategic view of energy as well as high-level White House access. So, it was a pleasure working with him and we worked on several initiatives to try to diversify oil and gas production outside the Middle East and reduce the oil dependence of countries on OPEC.

Q: Were your programs funding those activities?

ICHORD: These were policy programs that were worked on with State and Treasury and other agencies such as the program that we pursued with the World Bank for them to partner with countries and oil companies to produce oil outside of OPEC in fields that were of lesser interest to the major oil companies. You can see, at that time, the dominant interest was in oil, the security of oil imports for the United States and its allies, and the

concern over the power that OPEC was amassing with the tremendous inflow of oil-export revenues.

Q: Interesting.

ICHORD: I should also mention my work with a State Department officer who was headed the group I was in at DOE, named Marion Creekmore. He became a DAS (Deputy Assistant Secretary of State) in the Bureau of International Organization Affairs at State and also US Ambassador to Sri Lanka. He was an action-oriented officer and was a great mentor to me. On one initiative, I remember we worked together with Steve Bosworth, who you remember, right?

Q: Yes.

ICHORD: Bosworth was head of the economic bureau at State and sherpa to the G-7. We developed an initiative on renewable energy for developing countries that was approved by leaders at the 1978 G-7 Summit in Bonn. So, we were ahead of our time. We then had planning meetings with all the countries in the IEA and tried to stimulate interest in this energy option and its broader energy security and development benefits. We had identified interest in the subject by Jim Jeffords, a congressman from Vermont, who was a big advocate especially given Vermont's potential for both micro hydro and biomass energy. With his support, we secured some funding for USAID programs in this area. That was the lead up to my joining AID in June of 1979.

Q: Were you recruited or did you just—

ICHORD: No, I did a lateral with my ERDA/DOE boss Dr. Norman Brown.

Q: Okay.

JOINING USAID AND WORK IN ASIA

ICHORD: Norman had been brought over to USAID by Jack Sullivan, the assistant administrator for Asia, and Norman asked me to come with him.

And so, before that DOE and USAID had prepared an initiative for Vice President Mondale's trip to Southeast Asia which focused on expanding energy cooperation with ASEAN, (Association of Southeast Asian Nations). After the visit, we organized an interagency trip to the region. On this trip I had a chance to work with Ray Love, senior Project Officer at USAID, who you know I'm sure.

Q: Very much, yes.

ICHORD: Ray and I and someone from State who I can't recall, went out to the region to implement the Mondale energy initiative. Unfortunately, when we were in Indonesia, I learned of my father's death and was not able to complete the mission.

Q: Oh, sorry.

ICHORD: I've talked about my real love for Asia and given my past work, I jumped at this opportunity to go to work in the USAID Asia Bureau with Dr. Brown..

Q: (Indiscernible) yes.

ICHORD: In the Asia Bureau, we had an interesting portfolio because we dealt with science and technology issues and environment issues as well as energy issues and I think that's important to my intellectual development in terms of being really focused on environmental impacts of energy as well as the technological innovation issues, which I had of course cultivated at the Technology and Development Institute at the EWC and at ERDA. We developed several projects for promotion of renewable energy, notably in the Philippines and India. The Russian invasion of Afghanistan in 1979 was very important and of course spawned AID's big Pakistan program. Around this time, we had convened under AA Jack Sullivan a mission directors meeting in Manila on energy and environment that was well attended and generated momentum to expand mission programs in the renewable energy field.

Well, Norman decided to retire and I took over the division in 1980. So, if you want, we can talk a little bit about that unless you've got some other questions.

Q: Well, just, so when you were working with Asia, were you setting up new bilateral programs or—in relation to the countries in the AID missions, what was—

ICHORD: We mainly worked with the missions to develop new energy and environment programs. The regional activities were relatively minor. I worked as Chief of the Division for not quite a decade. You recall the Asia bureau was merged with the Near East bureau.

Q: Right.

ICHORD: I think it was, like, '87. Do you remember the date? I don't remember.

Q: I don't know.

ICHORD: So, I worked as the chief of the Asia Bureau Science, Technology, Environmental division from about '80 to '87. Our innovative efforts complemented the historical focus of USAID on large rural electrification programs in Philippines and then Bangladesh in cooperation with the NRECA, the National Rural Electric Cooperative Association.

Q: Right.

ICHORD: We also had smaller rural electrification efforts in other countries – India and Indonesia. But the electricity cooperative model wasn't really accepted in India.

Q: Right.

ICHORD: Although I worked on some of those capital projects, by reviewing some of the projects that were developed by the engineers in the missions, my main focus was on renewables. And I worked with AID's central Bureau Energy Office to develop renewable energy programs in the Philippines, subsequently in Thailand, India, Indonesia, Nepal, and other posts. Our focus from the regional bureau standpoint was very much on energy policy and planning, renewables, watershed management. We stressed the interface between energy, environment, agroforestry, and fuel wood issues. The importance of these areas was highlighted in the 1979 regional mission directors conference I previously mentioned.

So, it was sort of a seminal effort to develop a more coherent program around the alternative energy space.

The other big thing I should mention was the transfer from the Latin America Bureau of my very close friend and colleague, Bob Archer, to be my Deputy.

Q: I know Bob, yes.

PRIVATE POWER DEVELOPMENT

ICHORD: And so, Bob and I worked together the rest of my career in AID and we became known as the "two Bobs". I am grateful for Bob's long commitment to advancing US energy and foreign policy interests and many of the results and achievements I mention could not have happened without his creative ideas, sound advice and hard work. One emerging issue we concentrated on was the development of private, independent power. In Pakistan and in other countries, we saw that energy demands put huge pressure on national budgets. Countries were really constrained in terms of developing the energy infrastructure needed to support economic development. Elsewhere, particularly in Latin America, efforts were being pursued to get the private sector involved in electricity power generation. And in the U.S., we had a new law that was called PURPA, the Public Utilities Regulatory Policies Act of 1978, which basically mandated preferential treatment for renewable energy in utility grids. So, we took these trends and began to explore through workshops and assessments the applicability of the private power concept for Asia. We initially pursued the idea in India (the state of Gujarat); the Philippines; and Thailand, which was quite difficult with the dominant state utility EGAT. But Pakistan became our big effort and a major feature of the billion-dollar energy program we developed there after the Russian invasion of Afghanistan.

We had a tremendous team working on Pakistan: headed by Charlie Mosley but including Jim Beaver, John Morgan, Jim Sullivan—names you know.

Q: You said billion-dollar?

ICHORD: Yes, it was over a couple of years in the mid-1980s. We financed power plants, such as the first gas-combined cycle at Guddu with the Asian Development Bank as well as other power transmission and distribution work and extensive technical assistance in energy planning, conservation, reform of the Water and Power Development Authority through a contract with the US utility AEP from Chicago.

Q: That must have been by far AID's largest energy program in the world?

ICHORD: I believe so at the time before our involvement in Afghanistan. But we also had at that time a major capital energy assistance program in Egypt that was also financing power plants.

Q: Ah.

ICHORD: In considering this experience with capital projects, I believe in general they went pretty well, and we had excellent project development and engineering officers on staff to work on them. Even though we are not doing the big infrastructure projects now, except in a few places like Ukraine, I believe there are important lessons from these large-scale programs that are relevant to our approaches to energy transition and clean energy investment today.

Q: Right.

ICHORD: But you know, the way you tie it together, that is the technical assistance dimensions with the capital projects is one of the big challenges that the U.S. government faces in terms of working with developing countries and dealing with the kind of competition that we'd have from China. But we can come back to that later if you want because I think it's one of the lessons to at least consider in terms of the way forward on US foreign assistance.

Q: Right, right. Well, let's move back to Pakistan for a minute. How was that program designed and negotiated with the Pakistanis?

ICHORD: Well, one of the great things about the Pakistan program is that we initially had Donor Lion as the mission director.

Q: Ah, right.

ICHORD: Donor was one of the greatest mission directors that I ever worked with. And, we had a good team that we built up, as I said. Charlie Mosley came to me one day and said, "Listen, I'm going out to Pakistan, let's put together a team." So, we did that. We hired Jim Beaver, we hired John Morgan and Ken Lue Phang from TVA and brought in Jim Sullivan, who later became director of the USAID Central Energy Office, as a PSC. Our team worked collaboratively to put together a strategy for the program involving extensive collaboration with other donors, particularly the World Bank. Pakistan was a different place then. We had excellent counterparts in most institutions that were very

receptive to US assistance; and obviously, we had money to support both the institutional and human resources development as well as the capital infrastructure dimensions. One project we developed was an energy planning project called ENERPLAN that expanded into energy conservation issues (ENERCON). ENERCON was a groundbreaking project in the energy efficiency area, which was becoming an important focus of USAID energy work as people began to realize the potential for improvements in energy intensity while still increasing productivity.

In Pakistan, the power and water issues were so intertwined, and the nexus was important in many ways. The government was very focused on the big hydro facilities and of course USAID had helped build the Tarbela Dam, the largest earthen dam in the world, in the 1960 and early 1970s. We returned subsequently to help rehabilitate Tarbela but our focus then was on increasing thermal power output needed in Lahore and Karachi and as a complement to seasonal hydro. This was one of the reasons we focused on establishing a private power framework. The thermal capacity was basically at that time reliant on gas with the large Sui gas field and there was significant domestic gas potential, not like today where they are importing Liquified Natural Gas (LNG).

So, we wanted to develop and improve the efficiency of gas utilization in the power sector and thus pursued the Guddu combined cycle power plant, which with GE turbines had thermal efficiencies in the low forties, compared with 33 percent for single-cycle plants. It was the most efficient plant in the country and probably in South Asia at the time.

It's amazing to look back, because now the thermal efficiency of gas combined cycles is 60 percent plus. Just shows how the technology has changed and many gas additional combined cycles have been built throughout Asia, including in Pakistan.

In sum, in Pakistan we had a comprehensive energy program, a good management and technical team, with excellent local energy office staff, strong support from the Bureau and consistently high-quality mission leadership in Donor Lion, Rocky Staples, and Jim Norris.

Q: Did you travel to Pakistan often?

ICHORD: Often., I was there every couple of months, sometimes for three or four weeks at a time.

Q: And when you were there, what were you doing, what was your role?

ICHORD: Well, I was an integral part of the mission team which was working to develop a sound strategy, design projects, develop and award contracts, monitor implementation, maintain good relations with counterparts and understand their issues. It was a lot different than my relationship with some other missions, which, while welcoming your views, kept management and implementation issues under their tight control. And I give

a lot of credit to Charlie Moseley, who headed the program and was very collaborative and results oriented.

Q: How long was he there, Jim? Do you remember how long he was mission director?

ICHORD: I don't remember exactly. While Pakistan took a lot of my time, we continued to develop our programs in other countries of the region, especially in renewable energy and private power. One of the biggest renewable programs was a small hydro program that we did in Thailand. And remember John Erickson was the mission director there.

Q: Yes.

ICHORD: And we had a great counterpart in the director of the National Energy Administration, who was interested in small hydro. We developed a $15 million program, or something like that, supporting local hydro project development technologies. There were lots of opportunities for small hydro in the north and northeast.

So, I remember going up to this village near the Burmese border. It was quite a drive; but when I got out of the car I was met by a young man, who immediately gave me a poppy.

Q: (Laughs)

ICHORD: I guess this was to give me an appreciation of what was really king in this area near the Burmese border.

Q: (Laughs)

ICHORD: I never found out whether our small hydro plants ended up feeding electricity to opium processing plants.

Q: (Laughs) Right.

ICHORD: But anyway, that's an example of the kinds of things that we did.

One of the other projects that I remember was in Indonesia, where we had done extensive work in national energy planning with the ministry of mines and energy, but we were also working with the ministry of science and technology which was headed at that time by Dr. Habibie. You will recall that Habibie subsequently went on to become President.of Indonesia.

He was an imaginative innovator, who had worked in Germany with an aircraft company and was very into advanced technologies. So, we decided that it would be useful to try to develop an energy laboratory, called Puspitek in Indonesian. I worked with the mission science officer, Bill Littlefield, to develop this project. The idea was that Indonesia, a big country with huge energy demands and a large and growing population needed to develop their indigenous science, engineering, and technological capacity. And if you remember,

we used to do a lot of these projects but unfortunately, we don't do them as much anymore. AID had in the past helped to finance the development of the leading science and technology university in Indonesia, the Bandung Institute of Technology. Puspitek was sort of similar in concept to one of our Department of Energy national labs in that it sought to forge linkages with leading science and technology organizations in the country as well as to try to begin to transfer and adapt technologies from the West. Habibie had the vision coming from the German aerospace industry of Indonesia becoming an important supplier to international airlines, which subsequently happened. We explored with US energy companies their potential involvement in developing Puspitek. One company was Combustion Engineering, which at the time was a major US company in the power sector, including coal. Indonesia had a lot of coal, especially in Kalimantan, which it was looking to for electricity generation. Indonesia has since developed this coal and is one of the leading coal exporters to the world. But now reducing coal is one of the US's main objectives under the new multilateral Just Energy Transition agreement with Indonesia reached in November 2022. So, the focus on climate change has really changed policy orientations; but the idea was that they could eventually develop their own boilers and other technologies for the power sector in Indonesia, just as India had done with the industrial company BHEL. We were also looking at collaboration in renewable energy technologies and other technologies too that would be relevant. So, that was another interesting example of how energy technology interventions could go along with energy planning, the private power formation, and policies that we were trying to establish that would help governments mobilize capital for the power sector. Energy demands have consistently been growing rapidly in this region. We're talking about five to 10 percent growth in electricity demand a year. The capital costs of such growth are enormous.

So, at the same time we were working on rural applications and rural electrification, we were working on the broader policy framework. My view was that we needed to do more on energy efficiency, including in urban areas; and of course, there was a tension at that time within AID in terms of how much we do rural development versus urban development. The focus on rural development was influenced by the fact that most of the countries still had high percentages of fuelwood and biomass use for cooking. This fact sparked interest in deforestation and watershed destruction, even though agricultural land expansion was also a critical factor. So, we transitioned our Asia Bureau portfolio to complement energy by moving into forestry, agroforestry, watershed management, and coastal zone management and I had staffers with expertise in forestry and environment that worked on projects in these areas.

Q: Oh, really? That's interesting.

ICHORD: One of the interesting program areas that I think is still valid and does not receive the attention it deserves, given all the focus on wind and solar technologies, is bioenergy. Now there were some positive as well as negative aspects of what we did in this area, but one initiative which involved our collaboration with the U.S. Forest Service and USAID's Central Forestry Office, was to create a regional research network on fast-growing trees with leading forestry institutes in the region. You had this need for reforestation and for agroforestry as a means of helping rural communities to increase

their incomes, provide fuel, provide fodder, provide fruit; so, there were lots of dimensions to this work that cut across energy, forestry, environment, agriculture, water issues. And I think that this experience was important to my thinking and development of a more holistic approach to development and the role of energy. We had some success in terms of the watershed management programs and we worked with a number of countries, e.g., we worked with India in Maharashtra and Madhya Pradesh on big forestry programs, $20-, $30-million-dollar programs. We had programs in Thailand, Philippines, Indonesia, Nepal, not so much Bangladesh, but also in Sri Lanka, complementing the big Mahaweli irrigation program.

Q: Right.

ICHORD: And those activities sometimes included park programs, nature conservation, biodiversity, protection of elephants in Sri Lanka, for instance, working with the local park services. We also had watershed and coastal zone management projects in Indonesia and the Philippines. In the Philippines we also had a bioenergy project involving fast-growing trees which was innovative but didn't turn out well. We were working with a forester in AID's central forestry office named Mike Binge, who you might recall.

Q: Yes.

ICHORD: And Mike was very knowledgeable about a tree species called "ipil-ipil", a leguminous species from Central America that grew like a weed. And so, we became involved in a project embraced by General Dumal, who headed the Rural Electricification Program in the Philippines, to establish bioenergy plantations that would provide energy for combustion in engines and small power plants using a three-year tree rotational cycle.

Q: Hmm, wow.

ICHORD: In principle, given the many, remote island areas in the Philippines that depended on the import of expensive diesel fuel, the plantation approach was seen as a source of local fuel for power which could provide employment and resources for the community. As we engaged with them in a few demonstration projects, an insect somehow came over from Central America and it began eating the leaves and killing the trees.

Q: Oh, no.

ICHORD: So, it just shows you, you've got to be careful. We had other issues related to forestry which I won't go into, but one merits mention -- the famous incident where Congress earmarked legislation for a project on fast-growing Oregon poplar trees in Nepal.

Q: Oh, yes. This is—

ICHORD: The famous—

Q: —senator from Oregon?

ICHORD: Yeah. Mark Hatfield.

Q: Yep.

ICHORD: And so, I won't go into the gory details, but—

Q: I'm very familiar with that one.

ICHORD: (Laughs) I think at one point Congress put the entire AID budget on hold until we resolved the issue. And thank goodness we had somebody like Jim Norris as Deputy Administrator of the Asia Burea, who was calm and collected and could deal with Congress on the issue while we tried to develop a scientific basis for what we were doing, Eventually, rather than transferring Oregon poplars to Nepal without any trials, we finally negotiated that we would do trials for both indigenous and exogenous species, including the Oregon poplars. I had consulted with a lot of university experts on poplars, and it was clear that there was, of course, a risk that introducing an unknown species like this into the Himalayan environment would not go well.

Q: Right.

ICHORD: And I don't have the exact numbers, but a large percentage of the Oregon poplars in the trials died. But it was an interesting case in the domestic politics of foreign aid.

Q: Right.

Those are great. While you were in that regional office, running obviously a very large program, was there a central office of energy at AID?

ICHORD: Yes, there was --it was in the Technical Assistance Bureau at the time. But there was a central office of energy, which we worked with on some projects and drew on their technical expertise.

Q: Okay.

ICHORD: But Bob Archer and I and other staff in the bureau were the main drivers behind the energy programs and technical support to mission projects.

Q: Were you a GS or were you a PASA? What was your—

ICHORD: I was a GS from the time I joined the Agency on a lateral transfer from DOE. So, I think for those that are interested, there are rewarding careers in AID for GS employees without joining the Foreign Service.

We did hire PSCs (personal service contractors) in some of the posts (e.g. Pakistan) to implement the programs. We also used limited Foreign Service appointments in some of the posts. And subsequently, of course, in the Europe and Eurasia bureau we had special notwithstanding authority from Congress that allowed us to hire technically qualified staff as PSCs in Washington. I'll talk more about that when we talk about Europe and Eurasia.

Q: Right.

ICHORD: It's an interesting question in terms of professional and management opportunities in the Agency. I always regretted in some respects that I wasn't stationed overseas for a couple of years, but on the other hand, during my thirty plus years at AID, I worked in, you know, fifty or more countries.

So, the comparative perspective I gained from working across all these countries was invaluable in understanding what works and what doesn't.

I had plenty of challenges in the regional bureau and I liked that because it was closer to the action than in a central bureau.

I found the regional Bureaus to be more sensitive to the country specific context of program development. Given my love of Asia, I think it was a good choice to stay with the Asia Bureau, which then combined with the Near East Bureau. But they were subsequently separated, and I worked in Near East for a while, focusing on some really exciting activities in Morocco and Jordan on renewable energy development and energy efficiency. We started some of the first major energy efficiency programs in the agency. And that's where I met Pamela Baldwin in the AID central energy office, who later became my boss in the E&E Bureau and Mission Director in Morocco--working on those initial programs and getting some new contractors onboard to work for the whole agency.

Q: I have a number of books in the bibliography of USAID authors by a guy from the Philippines, Frank Denton, probably a dozen books, I think about rural electrification, and what he calls an extremely successful program there.

ICHORD: Yeah.

Q: Were you involved in that at all?

ICHORD: The big rural electrification program in the Philippines was developed before I joined the Bureau, but I was clearly interested in it from a strategic program standpoint. My view on rural electrification evolved over time. It was clear that electrification of rural areas was central to the development mission and just providing a small amount of electricity for lighting, for security, for sewing machines, for TVs and fans, et cetera, was really valued by the rural population. I traveled around a lot in the Philippines and saw the communities and what electricity would mean to the communities, in terms of the

social dimension, like the one TV in the village and everybody at night would crowd around the TV, as well as the productive uses of electricity, for example in grain grinding, refrigeration, and for irrigation. I was, however, concerned that the cost of rural electrification was high, especially for remote, low consumption areas. That's why to some extent I thought that the development of small SMEs (Small and Medium Enterprises) and micro enterprises was a very important complement to the program so that it wasn't just for lighting. But at the same time, providing electricity allowed households to substitute for kerosene lamps. You still had the problem of cooking with biomass fuels and the serious health consequences of that. But I believed that AID should explore the potential micro hydro and renewable alternatives to stringing wires to remote locations. Micro hydro technologies were not new. I remember going to a site in Thailand where I saw a micro hydro unit that was manufactured in York, Pennsylvania. It wasn't operating, but you know, it probably was from 1900. It was really old. (Laughs)

So, this interest was a logical extension of my work in 1978 on the G=7 initiative I mentioned earlier. I therefore became interested very early in how to improve energy access in developing countries. This focus was critical to my future work at the State Department, which I will explain later.

I was more involved in the Bangladesh rural electrification efforts and looking particularly at the cooperative ownership/management structure and how that worked. I think there are important lessons from that. We started in Bangladesh with thirteen cooperatives and NRECA (National Rural Electrification Cooperative Association) was the contractor and they helped set up the institutional framework. In both the Philippines and in Bangladesh they created a rural electrification administration -- a dedicated separately funded government program. It wasn't out of the central ministry or the main national utility. It was a separate program. So, given the donor support it had more certainty from the standpoint of funding and had very strong local leadership. I previously mentioned General Dumal in the Philippines. You may remember Tom Niblock who served as USAID mission director in the Philippines for six years in the early 1970s.

Tom was one of the founders, pioneers of that program and obviously NRECA became an important constituent of AID with the large rural electrification program in Asia. But they subsequently worked in other regions as well to promote the rural cooperative model. In Bangladesh, from the thirteen original cooperatives, the system has expanded to about eighty. They started with a strong discipline with regards to payments by the local consumers and the villagers; and, of course, the cooperative model is where the villagers own and operate the system with technical support from the central rural electrification board.

So, with US and other donor support—most recently from the World Bank, these systems grew over time. But it appears that financial viability has become problematic and some of the tariff collection discipline has waned. And then you've had situations in both the Philippines and Bangladesh where typhoons and monsoons have destroyed infrastructure and required a lot of rehabilitation. And since a lot of the cooperatives are relatively

small, some of the economies of scale that you would have in a larger utility distribution area management process may contribute to the financial pressures on the cooperatives.

I've been working recently with AID on some Power Africa activities and was involved in the creation of this initiative which was a major objective from the Obama Administration and sought to provide electricity to unserved consumers. I have observed that the rural electrification issue has become a more complex issue with regards to what is the feasibility of extending the grid to these more distant areas given the development and lower costs of solar and renewable energy technologies that can power households and villages, especially if they are replacing diesel generators.

Q: Right. So, Bob, one thing I remember from different places is that for the mini hydro and the solar and extending electrification into the more remote areas, the Peace Corps was often involved. Were you involved with any programs with Peace Corps at all?

ICHORD: I don't remember that in Asia, John.

Q: Okay. I think that was mostly Africa.

ICHORD: Yeah, probably Africa. Maybe some in Nepal. I'm trying to remember. But we did have a cooperative program there and NRECA came in later, I think after I had left in terms of Nepal. But it wasn't a key factor that I can remember.

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WORK WITH USAID BUREAU FOR NORTH AFRICA AND THE NEAR EAST

Q: All right, we're continuing with the first interview with Bob Ichord, and we're moving—in his work directing the energy program for the Asia bureau, which became the Asia Near East bureau. We're moving towards new programs he was involved with in the Near East bureau of USAID. And Bob, why don't you take it from there?

ICHORD: Okay. Well, there were a small number of countries in the Near East bureau that we were working with; but I would say overall it was more difficult working in the Near East bureau than in the Asia bureau in terms of country interactions, in part due to both language and cultural factors. Also, the politics in Near East countries tends to be very contentious and sensitive. But anyway, I was most involved with Morocco, Jordan, and North Yemen – not so much in Egypt with its mainly mission-managed program.

Morocco was important and I give my good friend, Steve Klein, a lot of credit. Steve went out to head the energy program, working with Janet Ballantyne, the mission director.

Q: Steve was my second boss in AID and I just saw him a couple of days ago.

ICHORD: (Laughs). Steve and I had worked together for a long time when he was in the Africa bureau. We did some demonstrations of solar technology when I was at DOE. Anyway, we saw the potential in Morocco to develop renewable energy, given the great wind and solar potential and their dependence on hydro and oil. Steve developed the concept of creating a renewable energy center, called CDER, to be a focal point for this development. AID put a considerable amount of money into both the physical and human resource development of the center, which is still active. We also did long-term training. I believe there is an argument that can be made that it's the long-term human resource development investments that are the best payout for AID over time. In this instance, one of the gentlemen we trained went to the University of Pennsylvania, and he subsequently came back and eventually became the director of the Moroccan government's entire renewable energy program and agency. More recently, he was a key figure in terms of the Moroccan leadership of the UN conference of parties (COP) for the global climate change summit. It just shows you how this AID support undoubtedly shaped his career and his rise to a leadership position, not only in Morocco but for the global climate change movement.

We developed an energy efficiency project with industries to begin to introduce and develop a commercial approach. Another important focus was on natural gas. Given Morocco's political relations with Algeria, the issue of gas supply to Morocco has always been a delicate one, but we found it was possible to develop a project involving the supply of Algerian gas for a combined cycle gas plant in Morocco as part of a larger initiative to develop a gas pipeline to Europe. I helped bring in a top US gas industry expert who I had known from DOE days, who helped design the project with the Moroccans. So, we helped Morocco chart its clean energy transition and they have made enormous strides in developing their solar and wind resources with companies like GE as major investors. They have more recently been developing a capacity to import LNG (Liquefied Natural Gas) from the United States and other sources to reduce their dependence on imported oil.

In Jordan, we concentrated on energy planning and energy efficiency work. AID has continued with a very substantial energy program there in recent years. North Yemen, which was separate from the South then, of course, was a difficult environment, but we did involve technical experts from the U.S. in the gas technology area, because the government was just beginning with US Hunt Oil to develop their domestic gas resources and there was a need to develop their human resource capacity. So, we helped finance a program to train a gas technology core group.

In Egypt, we also undertook energy planning assistance that complemented the major capital project efforts in building gas combined cycles and transmission networks. I think the interesting lesson-learned is that in both Egypt and Pakistan gas to power projects, AID was able to do these projects pretty much on time and within budget, which was not the case for a lot of infrastructure projects. And these gas plants became a mainstay of their power systems. I would remark that when people say AID can't do capital projects, that there are examples where we have done successful capital projects. It does raise some questions about whether AID, in today's world, should return to including such

projects in its portfolios. These types of high visibility projects are very much sought after by the host countries. Of course, AID is currently providing energy equipment in Ukraine given the crisis in their power system due to the energy infrastructure destruction from the Russian bombing. We have also seen the growth of the MCC (Millennium Challenge Corporation) has provided funding for some types of energy infrastructure.

Q: The Millennium Challenge Corporation.

ICHORD: The Millennium Challenge Corporation. But not so much on the generation side. Generally, it's more on other aspects of the infrastructure, e.g. pipelines and electric system transmission.

So, anyway, that's about all I have to say on the Near East job. I don't remember too much more.

Q: All right. Well, you've covered a lot of ground here. Why don't we stop here? Bob, the next phase will be your move to Eastern Europe, is that right?

ICHORD: Right. Eastern Europe we started in '89.

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Q: Good morning. This is John Pielemeier. I'm interviewing Bob Ichord on June 19, 2023. This second interview is going to focus more on Bob's years working with Eastern Europe right after the breakup of the Soviet Union.

WORK IN EASTERN EUROPE AND THE FORMER SOVIET UNION

And Bob, Please introduce the historical context and move into your role in the program.

ICHORD: Thank you, John. It was certainly an historic time, as we all remember in terms of the fall of the Berlin Wall and the start-up of AID programs in Europe and the former Soviet Union. Of course, after the fall, Congress passed what was called the Support for Eastern European Democracies Act in 1989; and remember that at that time the Europe and Near East Bureau had been established and we were covering that whole area and closely following the issues and the revolution in Poland. but we weren't doing too much in terms of preparing for the big program. But after the Wall fell and the Act was passed, we began working hard on preparing for the work in this new region.

NORTHERN TIER EASTERN EUROPE ENERGY SECTOR REFORMS

Poland and Hungary were the two priorities to begin the program and in the SEED Act Congress specifically earmarked funds for work in Poland in the coal area. As you may know, Poland is one of the largest coal producers in the world. They were 80--90 percent dependent on coal and there was terrible pollution from coal. There were some early visits by some DOE (Department of Energy) folks and others that also stimulated this

interest. Congress also focused our attention on energy efficiency, but not anything specific.

So, we began working with DOE on a project near the historic city of Krakow, Poland, where they had a power plant that they were interested in retrofitting to reduce emissions. We started this work with DOE and colleagues from their Pittsburgh national lab in the winter of ’89 when I remember going there in the freezing cold and having problems with the heating system where we stayed. The project had a lot of problems which I’m not going to go into because it involved some technical issues. It was eventually built but never operated well. Working on the project, we became very familiar with the leadership of Krakow and the broader problems they were facing in terms of the energy system, the heating system, the tremendous pollution, and carcinogenic particles from the small coal boilers that heated the town. We began working on that issue in terms of how to reduce that pollution and shut down some of these old boilers.

The big issue, which is interesting in today’s context, was whether the city should transition to natural gas imported from Russia to try to eliminate a lot of this coal pollution. There was a big debate since it was obviously going to be expensive to try to do that and to become dependent upon imported gas from Russia. Eventually, they did build a gas pipeline from Russia and a lot of the cities in Poland switched to gas; but now with the war in Ukraine and EU policy, Poland has built a number of LNG (Liquefied Natural Gas) import plants and has aggressively moved to end their dependence on Russian gas.

We developed a second project with US DOE that was dealing with energy efficiency and low emissions considering all kinds of policy, regulatory, and technical solutions like smokeless briquettes. It was a big challenge given the extensive and inefficient coal use -- I remember trying to run in Krakow in the thick pollution which was not a good idea.

Q: So, Bob, how welcoming were the Polish officials to the U.S. assistance at this point?

ICHORD: Oh, everybody in virtually every country was so anxious to establish contacts and to work with us. I told my wife this is a historic time, please forgive all the travel. It was a very heady time and exciting to have the personal interactions with these cultures and countries that we really didn’t know much about.

In late 1990-91, we developed a broader regional energy program in what we called the Northern Tier: Poland, Hungary, and Czechoslovakia, which was split in 1992 into the Czech Republic and the Slovak Republic, We still maintained a strategic focus on energy efficiency but also sought to deal with the aftermath of the disruptions with the fall of the Soviet Union in late ’91 and the issues of energy supply difficulties as well as price increases and uncertainty with regard to supplies of Russian oil and gas. There were also the events in the Baltics with the Lithuanian declaration of re-independence in March 1990 and conflicts with the Russian troops. Russians recognized the independence of Lithuania in September 1991. So, it was quite a dramatic period and we moved quickly to implement a program of energy efficiency involving short-term energy assistance like we

had done in the Northern Tier with a big emphasis on heating systems as well as some industrial energy efficiency applications. We had some contractors, but we also worked with the Alliance to Save Energy, which brought together a group of U.S. companies, including Johnson Controls, Honeywell and Armstrong, in a program that tried to develop confidence and show that we had something specific to offer in terms of direct improvements in their situation and provided equipment and instrumentation that helped them improve the efficiency in some of these heating or industrial plants. It was quite successful in terms of getting off the ground with something that was concrete, and I think that was very important to the good reception that we got—that we didn't just come saying, "Well, you know, we're going to develop a program over the next year or two"—we came with immediate action and equipment. We had great support from the AID contracting office to get these contracts done quickly—in a matter of weeks. So, it was extraordinary, as you know, from AID experience, in terms of getting a quick contracting turnaround.

Q: Bob, were you working with government entities, parastatals? What was the structure of the energy industry in those countries?

ICHORD: Yes, most of the industry— and most of the electricity companies, were state owned, and so that was certainly a factor here in terms of their experience under the communist system. But in terms of the heating systems, we were working quite a bit with local municipalities in the energy efficiency programs. I'll get to the issues related to private investment and privatization of the systems in a minute.

Q: Okay.

CENTRAL EASTERN EUROPE ENERGY SECTOR REFORMS AND START OF NEW INDEPENDENT STATES COOPERATION

We developed a broader CEE Central Eastern European regional program in 1991, including in Romania, Bulgaria and then Yugoslavia prior to the war, that had policy pricing reforms, regulatory reforms, energy efficiency and refinery environment protection. Then, after the collapse of the Soviet Union at the end of '91, then Secretary Baker as secretary of state said, "We need a team out there quickly to begin working—engaging with these new independent states of the former Soviet Union." And so, I put together a team really quickly and we went out in February of '92 , meeting in Russia and then staying or splitting off to Belarus, Ukraine, Armenia, Kazakhstan and Kyrgyzstan – the initial six NIS (Newly Independent States) countries, We were able to get a fast start since we basically used and adapted the template from the Eastern Europe that was concrete, proven to be successful and which AID management was ready to go with.

I kicked off the programs in the NIS, but as you may remember, we then split. We had the Central and Eastern European mission in Washington and the NIS taskforce that was created in '92. I decided to stay with the Central and Eastern Europe program. But by 1994, it was all brought back together into the Europe and Eurasia bureau. I forget if that

was the exact name at that time. So, I was chief of energy and infrastructure and Jim Beaver, who had been with the NIS side, was the office director. Of course, I had worked with Jim in Pakistan as part of the big team which I had referenced earlier in terms of my work with the Asia bureau.

So, when we brought everything back together, we spent time considering what were the strategic priorities that we were going to work on across the region. But in the NIS countries we were beginning to establish missions and representatives in the field. In Eastern Europe, we never really had full missions for quite a while. We had representatives. So, the mission in Washington concept was embraced initially with Don Pressley as head.

In considering the following years from 1994 to 2011 when I went to the State Department, we had 5 major strategic emphases to the program, which I tried to connect in a common framework across missions and with regional cooperation mechanisms. The good thing was that we were able under the notwithstanding authorities from Congress under both the SEED Act and the Freedom Support Act of 1992 to hire experts directly as personal services contractors. That was critical given the long time it normally takes to bring in people as direct hires. We were able to advertise and bring in about half a dozen technical specialists in different areas to manage the programs, which had grown to about $30—50 million a year on the technical assistance side.

One critical strategic focus was on the reform and restructuring of the electric power system, which was uniformly owned by state monopolies. A second priority was the interagency work on the pipelines to bring oil and gas out of Azerbaijan to international markets which was an interagency effort with a special State Caspian Energy Coordinator. We had separate State Department coordinators for Eastern Europe and NIS, which were then also brought back together, and then you had the Caspian Energy coordinator, and there was also a State coordinator for nuclear safety. So, you had power sector reform, gas pipeline issues, nuclear safety and the closure of Chernobyl, and energy efficiency as the core areas of engagement. The fifth area is related to regional energy cooperation and some of the mechanisms and efforts that we developed there. So, I'm going to go through each one of those and highlight a few things.

Q: Good.

POWER SECTOR REFORM

ICHORD: On power sector reform, we were dealing with integrated state electricity utilities, which were inefficient, polluting, poorly managed, and not at all customer or market- oriented. So, we decided that the best thing to do was to start by providing some assistance in terms of how they can begin to reform their utilities in the form of partnerships with US utilities. We developed the utility partnership program with Barry Worthington, Executive Director of the U.S. Energy Association (USEA), which is the U.S. representative to the World Energy Council. USEA had memberships from the Edison Electric Institute and the Electric Power Research Institute, as well as broad-based

energy industry and utility membership. The concept was to link U.S. utilities with US utilities and provide personnel exchanges in priority fields on a cost-sharing basis – USEA paid for the travel and the utilities provided their personnel and hosted delegations at their expense. We started in Eastern Europe but expanded into the Baltics and then the NIS countries. It was great because some of the U.S. utilities that were USEA members had groups of employees who originated from Eastern Europe. For example, with Commonwealth Edison in Chicago, we didn't even need interpreters because we had so many people that spoke Polish. And with New England Electric which developed a partnership with the Hungarian utility, the vice president was Hungarian. Similarly, in the Czech Republic we worked with Houston Power and Light, and a vice president there, Ray Snokhous, was Czech. So, you had these personal interactions besides having a major U.S. utility that was able to talk to them about everything from customer service and accounting systems to power line maintenance and worker safety. In fact, in the case of Poland, the government established the Polish Power Grid company and Commonwealth Edison transferred and adapted their whole human resources software system to the Polish Power Grid company. We were lucky US utilities were willing to make the commitment of their senior staff to work with these countries. This is not really the case today because of all the constraints on them.

Of course, the partnership program was done in the context of technical assistance to the ministries on developing an overall policy, legal, and regulatory framework. And so, another big area of focus was to help countries develop sound laws and establish regulatory commissions and agencies which were separate from the ministries as part of AID's overall effort to promote more democratic and less centralized systems. Like with the utilities, we created a cooperative program with the U.S. National Association of Regulatory Utility Commissioners (NARUC). We used the utility partnership model and developed partnerships between US state regulatory commissions and these new regulatory agencies, the countries. Some partnerships began with ministries until they passed laws that created these regulatory commissions; but every country except the Czech Republic established a regulatory commission over that period from 1993 to 2000 or so. NARUC had an extraordinary international manager of the program, Erin Skootsky, who continues to work on NARUC global regulatory programs today.

So, we then said, "Let's get these guys working all together." It was not that we didn't have exchange programs and others that brought them together, but I felt that it was important that they had a professional development association where they could exchange lessons learned and learn from each other. We established, with NARUC's help and with the strong support of the Hungarian Energy Office, a regional non-governmental organization called ERRA (Energy Regulators Regional Association) in Bucharest in 2000. Fifteen regulatory commissions joined from: Albania, Armenia, Bulgaria, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Poland, Romania, Russia, and Ukraine.

NARUC hired a wonderful woman to work in the ERRA office in Budapest and coordinate training, and the standards and technical work. ERRA has grown now to 43 countries around the globe. This was quite an AID legacy in the region and my colleague

and Deputy, Robert Archer, who did the daily management of the effort, deserves much of the credit for this success.

We also contracted directly under a competitive tender with two US law firms, Pierce Atwood, with its dedicated partner John Gulliver and senior attorney Cathy Connors, and Hunton and Williams, with its senior attorney and project manager Julia Weller and power market expert Jim Schmidt, to provide regional legal support. I was not sure this would work given the salary scale of law firms. But we were able to develop contractual arrangements that allowed access to a few of their senior lawyers. They provided key assistance on laws, regulations, licensing, tariff, and market design issues to most countries and helped the new energy regulatory bodies in their start-up.

Q: Were these also people who had the language skills from Eastern Europe?

ICHORD: No, but some of them had visited the region and were working under some of the broader AID technical assistance contracts.

Okay, so as we were putting in place the legal and regulatory framework, including policies and strategies to begin to restructure the electricity industry. This was more of a political strategy than an economic one because you were trying to decentralize political power by unbundling, that is separating transmission, distribution, and generation. The objective was to increase transparency and really break out the true costs (and corruption) in the system. These reforms were vigorously debated in some countries and the degree of unbundling varied. I mentioned in Poland they created a separate Polish power grid company that was separate from the generators and the distribution entities. The degree that the new generation of leaders were tied to the past varied. So, in Bulgaria you had much more entrenched, centralized control. In Poland and Hungary, the leaders were not as tied to the old, communist system. The European Union energy directives embraced unbundling and this helped move the process along, especially now for countries that have joined the EU.

We also began working in some countries on how to improve the financial viability of the electric power companies by improving metering, billing and collection systems as well as unbundling distribution and moving to privatize these companies with strategic investors. There was a big need for investment to modernize the distribution systems which were in very poor shape because of the lack of investment during the communist period. So, we began to develop a methodology for privatization together with the World Bank and European Bank for Reconstruction and Development (EBRD). There had been privatization in Latin America and other regions of the world and we had started some of that in Asia. As you remember, I was talking about my work in the Philippines and Pakistan in terms of private power. But on the distribution side this was new, but it was based on the assumption that you're not going to improve the financial and operational viability of the system without commercial distribution companies and that it was going to be hard to attract investors in to build generation if the state companies are not getting the revenues from the customers and distribution entities. So, it was a joint strategy with the banks, EU and ourselves; and so, we began doing that in different countries: Hungary,

Bulgaria, Moldova, Romania, Macedonia, Albania, Armenia, Georgia, Ukraine and subsequently Kosovo. I'm not going to go into every case because they varied a lot. Some were more successful than others. It was interesting that we did with the help of the U.S. company AES, which is a major global independent power company, privatize two distribution companies in Ukraine, which greatly improved their performance. But other oblenergos in Ukraine were saddled with large debts which limited sales potential and so, we couldn't privatize them until they restructured their debt.

Moldova was quite successful as a Spanish company, Unión Fenosa, came in, and bought several distribution companies. Bulgaria was probably the biggest and most successful venture we realized. In this privatization, we worked with the IFC, World Bank and EIB and privatized seven distribution companies for 693 million euros. The buyers were CEZ, EVN, and EON. We tried to get U.S. companies to invest as in the case of Ukraine. AES was interested but they decided to buy generation and distribution companies in Georgia. EVN, from Austria, also came to North Macedonia and CEZ bought the Albanian distribution company; A Turkish company took over the distribution company in Kosovo.

These privatization efforts were difficult and the due diligence required was hard because the accounting systems of the distribution companies were in such poor shape. Although it was a tough effort for the banks, the process did create a more favorable environment for generation investments. Actually, one of the early examples was interesting because Kazakhstan, which has always been more advanced in Central Asia than the others, decided that they wanted to sell their major coal generation assets at Ekibastuz and that happened very early in their reform process. AES, the U.S. company, came and bought it in 1996 for $3 million, subsequently invested about $200 million, and sold it in 2008 for a reported $1.1 billion. They also did the same thing with the distribution companies in Ukraine. But AES has since scaled back substantially their distribution investments. They have done a few in Africa and Latin America, but so, the number of U.S. companies that are involved in those areas were small.

Q: Bob, with your—with your special legislation, were you able to go to non-U.S. firms?

ICHORD: No but these were international tenders where we were involved mainly on the legal and regulatory dimensions as we worked with the international development banks to bring in an investment banker that would help manage the tenders and underwriting. In a couple of cases like north Macedonia and Kosovo, we were quite involved in the details of the tenders, but for the most part there was a natural division of labor.

OIL AND GAS PIPELINES

Let me now move on to the second area of focus, which was the oil and gas pipelines.

There was great interest with the dissolution of the Soviet Union in Azerbaijan and its tremendous oil and gas resources. In 1994, President Aliyev signed an agreement with Western oil companies which was called "the deal of the century" and has subsequently led to over $84 billion in investment by these companies on oil and gas exploration and

production. The problem at that time was that all the pipelines went through Russia. So, Azerbaijan and Western interest was to try to find a way to get these resources to the West and international markets without going through Russia, A line through Georgia was one possibility. We had consultants that were working in Georgia, which just came out of a period of civil conflict and independence issues with Abkhazia and Ossetia. First, we worked with the government in developing an agreement between Georgia and Azerbaijan on a first pipeline, which was called the Baku-Supsa pipeline. Supsa is on the Black Sea. But at the same time, international companies like BP were working on developing a pipeline that would go from Baku to Ceyhan through Georgia and Turkey to the Mediterranean, and that was called the Baku-Ceyhan pipeline. So, AID was part of an US intergovernmental group under the State Caspian Coordinator which helped to develop a framework in an intergovernmental agreement that was signed in 1999 in Istanbul. This was especially notable because it was the first pipeline that bypassed Russia and President Clinton later reportedly said this was one of the most significant achievements of his administration. The pipeline was built with funding from a lot of different sources, both IFI and private, and inaugurated in May of 2005. It was managed by British Petroleum. My former colleague at Fletcher, Bill Richardson, who was DOE Secretary at the time, attended the dedication ceremony.

A parallel pipeline was built for natural gas from the Azeri Shah-Deniz field which was commissioned in 2006 and called the South Caucasus pipeline. This pipeline went to Turkey and connected with the internal Turkish gas network. Later it was expanded to allow exports to the Balkans and has been important in Europe's efforts to diversify away from Russian gas.

NUCLEAR SAFETY

Let me move on to the third area of focus – nuclear safety. Nuclear safety was, from the beginning, a very important US interest. I remember early on going over and having some discussions at the White House about Armenia because Armenia after the earthquake in 1988 had to shut down its nuclear power plant, Metsamor. They didn't have much in the way of fuels and, anyway, couldn't pay for fuel, so it was a really, really a dark time in Armenia. We developed a policy to reopen with Russian support because it was a Soviet-designed reactor. It was one of what was called a "high-risk Soviet reactors". So, from the very beginning the G-7 had focused on the issue of how to improve the safety of nuclear reactors in this area and close some of the high-risk ones, which were the VVER-440-230s in Slovakia, Bulgaria, Armenia, and Russia, and the RBMK Chernobyl design reactors, which were in Ukraine, Russia, and Lithuania.

Together with the Nuclear Safety Coordinator at the State Department (Liz Verville and then Carol Kessler) and DOE and NRC officials, we developed a strong interagency team and AID transferred funding to DOE and NRC for nuclear safety assistance. We were also involved in looking at the energy alternatives to nuclear if we shut down these plants. A G-7 working group developed a plan to create a nuclear safety fund, which was possible under the special authorizations that were created in the mandate of the European Bank for Reconstruction and Development. A Nuclear Safety Account was

established at the EBRD in 1993 and the US contributed to the Account. The Account members and the EBRD worked with all these countries that had the high-risk reactors and tried to develop ways—even though eventually we wanted to close them -- to improve their safety so we didn't have another Chernobyl accident. The Account aided Lithuania, Bulgaria, Slovakia, and Ukraine, as I recall. Bilaterally we also supported Hungary, Slovakia and Armenia as well as Lithuania, Bulgaria, Ukraine, and Russia, transferring funds to DOE for operational safety measures (like fire system improvement) and to NRC for regulatory software and technical assistance. I think this experience is relevant today since we are entering into a new period where the US is pursuing the development of nuclear reactor exports to Eastern Europe and the Ukraine, both large-scale and the newer small-scale, modular systems. My concern is that we need to have that kind of substantial human and institutional development efforts if we are going to push these technologies.

With the input of European nuclear regulators, Bulgaria, Slovakia, and Lithuania closed their high-risk reactors as a condition of EU accession.

We also did a lot of work with Ukraine and some with Russia. In Russia, you had many high-risks reactors which the Russians did not want to close – for example, a Chernobyl design reactor in downtown St. Petersburg, which I see was finally closed recently. DOE provided support for a decommissioning study of this reactor.

Ukraine and the status of Chernobyl became a high priority of the NSC and G-7 overall. Carlos Pascual, DAA in the Europe and Eurasia Bureau who then went to the NSC was coordinating the US efforts, working with State Nuclear Safety Coordinator Carol Kessler and the interagency team on closing the remaining units at Chernobyl. I participated on this team, which played a major role in the G-7 negotiation with Ukrainian President Kuchma of a Memorandum of Understanding in 1996 which provided for the closure of the remaining units, support for developing a new shelter over the destroyed reactor, nuclear waste storage, and help with financing of alternative power sources. So, a process began to develop an implementation program for this agreement. An important element was the creation of a Chernobyl Shelter Fund at the EBRD to finance the new safe containment over the destroyed reactors. The project experienced major delays and the costs ballooned to over two billion euros. But the donors stayed with it, with the US providing, I would guess, at least $500 million.

Nuclear safety issues in Ukraine occupied a lot of our time. But as you can see now, with the concerns about the war and the Russian occupation of the large Zaporizhzhia nuclear plant, these issues are of critical importance. These issues had strong support from Congress, especially from Senator McConnell. The US also supported a program to qualify Westinghouse fuel for Ukraine reactors, which is paying off now with Ukraine's success in replacing Russia-supplied nuclear fuel.

ENERGY EFFICIENCY

The fourth strategic area is energy efficiency. The legacy of the Soviet period was one of tremendous inefficiency in energy systems at all stages of the electricity energy system,

not only electricity, but also heating systems because you had some of these giant district heating systems, such as in Ukraine and Romania, and almost all the countries in the northern part of the region that were very inefficient. Industrial energy use in the centrally planned economies had been very inefficient and the region was highly dependent on coal which made it worse.

So, energy efficiency improvement was a logical aspect of a strategy for the region, and as I said, it was recognized in the SEED Act and in the Freedom Support Act. I hired a experienced energy efficiency officer, Ira Birnbaum, who expertly guided the development of this strategic area. We worked with the Department of Energy and its Pacific Northwest Laboratory (Battelle) as well as provided direct technical assistance through our contractors. At PLN, a senior scientist named Bill Chandler collaborated with us to identify outstanding technical counterparts and develop several non-governmental energy efficiency centers to serve as catalysts to formulate policy and develop a local energy services industry. These were not big expensive projects. We were providing a couple hundred thousand dollars a year to support each of these centers, but they had good directors and staff and excellent local contacts with industry and government. We established with counterparts' energy efficiency centers in Poland, Czech Republic, Bulgaria, Russia, and Ukraine. We said we're going to give you seed money to get these things going, so maybe we provided three to five hundred thousand. But they all became self-supporting with the combination of private industry and donor support over roughly three years or so. They became not only places to provide technical services but also policy and regulatory, advocates and focal points for international energy efficiency companies like Johnson Controls to work in the country and understand what the market potential was. It was an interesting model. We were perhaps a little ambitious in believing we could develop full-fledged ESCOs (energy service companies), which actually provided financing in partnerships with industry. But we did some of that and there were a few that were established, in the Czech Republic in particular, that became viable service providers. And we did that in Ukraine as well and I believe energy efficiency is going to be extremely important to the future of Ukraine as well, as they rebuild their housing and infrastructure.

In the energy efficiency area, we had a cooperative agreement with the Alliance of to Save Energy, which we had worked with from the early days of the E&E program, and we added a regional dimension by establishing a network called the Municipal Energy Efficiency Network, which was developed with the director of the Bulgarian energy efficiency center, Eneffect. An interesting activity was working with the Bulgarian center on a hospital energy efficiency project at the municipal level. The project improved the air conditioning system and ventilation system in the hospital providing health benefits reducing secondary infections in surgery rooms, etc. The project was so well received that the head of the hospital became the mayor of the town of Gabrovo.

We later also used the AID DCA (Development Credit Authority) loan guarantee mechanism to finance energy efficiency in the Balkan countries. DCA has recently been transferred into the new DFC (Development Finance Corporation, formerly OPIC).

I would further comment that one of the uncompleted agendas in the energy efficiency area, which is relevant to Ukraine today, is heating system reform. Although some of the central district heating systems have been closed and communities have switched to decentralized natural gas systems, some communities still have such central heating systems; but they are generally not in great financial shape and the government has to subsidize rates for the poor. One of the big issues that Ukraine is going to face as they rebuild their municipal infrastructure is what to do with their heating and water systems. There are hundreds of district heating systems in the Ukraine and many of them are old and inefficient. We tried to get GE to come in and try to do some municipal upgrades to the district heat and hot water plants through municipal loans in better off cities like Odessa. If I remember right, there was some success in developing municipal financing schemes in both the Czech Republic and in Poland.

MAJOR PROGRESS IN THE SOUTHERN TIER OF EASTERN EUROPE

ICHORD: I will now turn to the southern tier, which came later in the AID engagement after the wars in the Balkans in the early and later 1990s. These terrible wars had a major impact on our work and assistance levels. Although our work was not complete in the northern tier, the policy and funding attention shifted to this southern tier. This early shift was unfortunate but the AID work on the northern tier clearly was vital in helping countries meet the requirements the EU was setting for accession. I would conclude that US assistance programs helped create a framework for a united Europe. I can say without hesitation that we played a critical role in advancing the reforms in a direction that was compatible with the energy directives of the EU and crucial in helping the countries meet the energy chapter requirements of the EU accession.

But, turning to the Balkans and the southern tier, we did a lot of work rebuilding some of the electricity networks in Bosnia and subsequently in Kosovo. We worked with a savy mission engineer, Merritt Brody, and with Craig Buck, the mission director both in Bosnia and then Kosovo. Both were instrumental in developing a major focus on infrastructure rehabilitation. From Washington, we were working on the regional side of things. Just has we had done in the northern tier in helping countries disconnect their electricity system from the Russia IPS system, in the southern tier we helped to disconnect some countries from Russia as well as reconnect the region into the West European system, which was called at that time the UCTE, Union for the Coordinated Transmission of Electricity (United Coordinated Transmission Electricity System). Of importance in their effort was rebuilding substations in Croatia which had been destroyed during the war. It was a remarkable achievement that the countries were able to reunify their electricity networks into UCTE by 2004.

With the end of the Kosovo conflict in 1999, the EU and the World Bank established what was called the Stability Pact. The Stability Pact included political, economic, social dimensions and we helped in establishing an energy working group under this framework, chaired by the deputy minister of economy in Macedonia. They already had a long history in the Yugoslav Republic of working together, so it was not so much that they didn't have a framework for thinking about this sector. They had developed with the

World Bank and other funders a fairly well-developed system before the wars, but it was, obviously, a challenge to create a real collaborative effort among these countries that had been fighting each other. I concluded that we could do this through focusing on the high-voltage electricity systems and through bringing the utilities together to work on strengthening and expanding the grid. We had the strong support of the Stability Pact chair, Gerard Busek, former Vice Chancellor of Austria and Ambassador Richard Schifter, and Ambassador Richard Sklar, who was State coordinator for reconstruction in the region, who had previously worked on energy issues in California. We lined up not only key people from all the state utilities but also two regional centers of excellence – one in Croatia, the Croatian Energy Institute, and one in Serbia, the EKC or Electricity Coordination Center in Belgrade. The E&E Bureau had a cooperative agreement with the USEA as I mentioned, that was one of the mechanisms that we used to further this regional transmission planning and coordination. U.S. Energy Association hired former US utilities officials to work with the local institutions and provided a widely used transmission planning software (PSSE) package to the participating companies and centers. This software and the subsequent development of a regional transmission system model available to all the countries, allowed the companies to plan and identify problems and bottlenecks in operating the transmission system and consider the impact of new lines and investments. The IFIs really liked this approach because it gave them a framework within which to evaluate all the proposals they were receiving to finance new transmissions projects and interconnections. Key to the project's success was a vice president of the Macedonian electricity company, who was a driving force behind the project and who helped us all to overcome the suspicions from the wars. It was quite a remarkable achievement for the Balkans, and it paved the way for the future development of the Energy Community. Dr. Busek of the Stability Pact always singled me out as an honorary European.

We also had very strong connections with the Greek government because Greece's energy network had been cut off from Europe as a result of the war; so, they were very anxious to promote development in the Balkans and to improve their economic linkages with western Europe. They hosted numerous meetings in Athens and other places, which eventually led to the completion of a formal legal treaty called the Energy Community Treaty or sometimes Athens Treaty. It was signed in Athens on October 25, 2005, and was ratified by all the Balkan countries in subsequent months. The contracting parties, including Bulgaria, Romania, and Croatia, before they joined the EU, basically agreed to adopt the EU directives in energy, competition, and environment in exchange for participation in the internal EU energy market.

The Treaty was groundbreaking in that it was the first multilateral Treaty in the Balkans after the wars. Some drew a parallel with the European coal and steel community, which had preceded the establishment of the European Union. So, there were hopes that it would be a catalyst toward further formal relationships in other sectors, and transport, obviously, had been a major area that they have focused on since then. But it was pioneering in its efforts to establish a coordinated regional energy market in both electricity and gas. There was a donor group that we and the World Bank were key members of and the Canadians were also quite involved. The Austrians were prominent

leaders in the process and Austria agreed to support a secretariat for the Energy Community in Vienna. Most of the funding came from the EU and Austria. The Energy Community developed a regulatory forum in Athens and subsequently a gas forum in Slovenia. A regulatory board was also established in Greece to coordinate regulatory issues. AID helped to support the process through our consultants and grantees, especially the two law firms I mentioned previously. Decisions were made by a Ministerial Council with support from a high-level, deputy ministers' group.

The Energy Community was expanded in 2011 to include Ukraine and Moldova. Turkey was an observer but never joined due ostensibly to the frictions in its accession dialogue with the EU as well as Russia opposition. Georgia and Armenia were also observers and Georgia finally joined in 2016 but Armenia has not yet joined.

The Kosovo issue, which intensified after their independence, has persisted and certainly the non-recognition of Kosovo by certain Energy Community parties continues as a problem.

The Central Asian states never participated in the Energy Community but AID has maintained an energy assistance program in Central Asia since 1992. We were particularly focused on reforms and utility development in Kazakhstan and Kyrgyzstan and regional electricity transmission. The Soviets had built a very strong high voltage transmission system linking the five countries in Central Asia, but after the dissolution of the Soviet Union there were problems in terms of cooperation. So, one of the early things that we did was to get all five countries to agree on a protocol on parallel operation of the high-voltage system. The center of the Soviet system had been in Tashkent in Uzbekistan, but that became problematic, especially as US relations deteriorated with Uzbekistan and Turkmenistan disconnected from the system. But we began working on not only what to do about that situation with the World Bank, EBRD, Asian Development Bank and the EU. We began pursuing the idea of a transmission line between Central Asia through Afghanistan to Pakistan. The project became known as CASA-1000 and consisted of a high-voltage DC line which would allow surplus power, particularly during the high-water months. Pakistan needed the power in the summer for irrigation so there was a credible economic rationale. We also worked with USEA to develop a regional electricity planning project that would also include Afghanistan. This work was in the context of Secretary of State Rice's vision of an economic corridor linking Central Asia and South Asia. The US agreed to support the CASA-1000 project, joining with the World Bank, which approved $500 million for the project.

Secretary Rice decided to shift responsibility for the region within the State Department and move Central Asia into the South Asia Bureau. In AID the region was also moved into the Asia Bureau from Europe and Eurasia Bureau. So, we were no longer involved in supporting the AID Central Asia energy activities.

THE CAUCASUS

The Caucasus were a different story in that we had sizable programs in both Armenia and Georgia, under which in the early days we financed emergency fuel and equipment imports. We also did a lot in both countries on legal and regulatory development, energy planning, utility reform and partnerships, privatization of the distribution companies and regional market integration.

Of course, the Russians invaded Georgia in 2008 and that was a game changer and led to a significant ramp up in AID funding for energy. We focused on getting private investment into small hydro projects, improving both gas and electricity transmission to reduce dependence on Russia gas and electricity imports. The small hydro fund that was created has financed as much as 500 MW of capacity.

We also worked, in Georgia, on trying to improve connections with Azerbaijan and Armenia. We developed a power corridor project that sort of paralleled the oil and gas pipelines and linked Georgia with Turkey and sought to facilitate Azerbaijan power exports and transit as well. With financing from the EBRD and KfW, a back-to-back transmission interconnection was completed between Georgia and Turkey that permitted the export of surplus Georgia hydro power on a seasonal basis. So, in principle Georgia could sell power to Europe since Turkey was interconnected with the European grid. USEA also developed a "power corridor" working group among the three utility parties to work on electricity market integration and trade.

Electricity interconnection issues between Georgia and Armenia were more difficult given Armenia's synchronous interconnections with Iran and Iran's agreement to provide emergency backup power to Armenia if Armenia's nuclear plant goes down. But the World Bank and KfW have continued to work on developing a stronger interconnection between the two countries.

Georgia was still dependent on Russian gas imports and allowed the transit of Russian gas over the main transmission line to Armenia. While there were attempts by Russia's Gazprom to take over the Georgia gas transit line, US efforts, particularly a major pipeline rehabilitation project by MCC, thwarted these attempts. Georgia has become almost completely independent of Russia supplies as the off-take volumes from the South Caucasus gas line from Azerbaijan have increased. In Armenia, where Russia controlled both thermal, hydro and nuclear assets after the war with Azerbaijan, we sought to develop alternative generation options to the continued operation of the nuclear plant, including renewable energy, small hydro and even carried out studies on the potential for a new Western nuclear plant.

Okay. So, I think that gives you a sense of the Caucasus role and how we tried to help develop both the internal and regional systems there.

Q: Bob, all of these—there are so many individual programs in these countries, and there were missions in some of those countries and maybe AID rep offices in others. Did you have any—were there any other energy officers with AID posted to those countries that you worked with?

ICHORD: Right. We had full-time energy officers in most of the major missions and some were supported by PSCs and excellent FSNs.

Q: FSNs? (Foreign Service Nationals)

ICHORD: Yes FSNs and also limited-term FSOs and PSCs.

Q: Right.

ICHORD:. Some FSOs learned about energy on the job. But we had good FSNs in both the Central and Eastern Europe side as well as the NIS side. For example, we had an excellent FSN in Kosovo who was instrumental in developing a robust energy sector program. Kosovo was dependent on two old, polluting lignite plants which AID and the international community were trying to close. We strongly considered with the World Bank a new lignite plant given the absence of gas, their indigenous lignite resources, the limited renewable energy potential at that time given costs, the absence of an interconnection with Albania, and the limits on Macedonia as a supplier given their dependence on imports.

There was also some rotation of FSO and PSC among missions which helped build a core staff capability in the region. There was also continuity in the contracting community which we worked with over the years.

AID is often criticized because of the use of the so-called beltway bandits, but on the other hand, it does develop this institutional memory and cadre of people who know the region really well and have worked in numerous countries in the region. And there's something to be said for that in terms of the effectiveness of our programs and the cooperation and trust of the counterparts. I think there are both pros and cons. As I said, I tried to bring in new blood through direct contacts and cooperative agreements as well as with law firms, non-governmental organizations like the Atlantic Council, Association of Energy Engineers and the Alliance to Save Energy, and utilities like Southern California Edison which worked on the Y2K problem. We also used interagency agreements to tap into the DOE national laboratory system, particularly in the energy efficiency and energy planning areas.

Q: Interesting

ICHORD: So, we had a toolbox of different implementation mechanisms to address the wide range of issues and country situations. One of the areas I wish I had focused on in hindsight, while we were working on the southern gas corridor, was the reform of domestic gas systems in the region. We did some but were mainly swamped with the power sector work and gas use was limited in most of the countries. Russia of course had a monopoly over supply and vested interests made change difficult. Of course, the US did warn Western Europe not to be so dependent on Russian gas. But we didn't have a significant international LNG industry with floating degasification units and all the

alternative supply possibilities like we are seeing pop-up today in the Baltics, Croatia, France, and Germany. We did consider alternative gas supply options in the Energy Community gas forum and the application of the EU gas directive reform to the region, especially in the Balkans; but probably should have done more to try to prepare for gas diversification and the gas system integration to break Russia's gas stronghold and intrusion into the domestic markets in the region.

And we were working with the Russians in several ways on power sector issues, such as the Black Sea Electricity Transmission Planning project with USEA. In the 1990s we had a significant program of about $100 million with Russia in power, heat, coal, and even some municipal gas reforms.

Q: Really?

ICHORD: We worked in northwest Russia with Honeywell and Johnson Controls on heating system improvement and with the AFL-CIO in a coal mine safety program, as well as provided mine safety equipment. We had a major electricity system-wide collaborative planning study (Joint Electric Power Alternatives Study- JEPAS) with the Russian United Energy System that became a focus under the famous Gore-Chernomyrdin Commission. Under this mechanism, AID participated in the energy committee which was chaired on our side by the Secretary of Energy. I remember that our Assistant Administrator Tom Dine was very active in this group. We also had utility partnerships in both electricity companies and municipal gas entities. We worked with their energy regulator as well, especially before it was abolished and folded into the Ministry of Energy. It is important to recall that there was a window of opportunity for reform in Russia when Chubais and Nemtsov became deputy prime ministers, and there was an openness to collaboration and investment by foreign companies. On the nuclear safety side it was more difficult since, as I mentioned previously, they didn't want to close down any of their plants.

We did work on how to integrate Ukraine and Moldova with the UCTE system and disconnect, as Poland and the northern tier did from the Russian system. And that ongoing effort led to the success last spring of Ukraine's full synchronous interconnection with Romania. We also worked on regional cooperation among the three Baltic states, especially in the context of the closure of the large Chernobyl design nuclear reactor in Lithuania. But there was not the same degree of support for disconnection from the NW Russian system at that time as developed later and where the countries now plan full disconnection in early 2025.

Throughout this historic period, I was fortunate to have great people to work with, both in terms of my staff, and with my senior colleagues like Jim Bever, Barbara Turner, Gloria Steele, Roberta Mahoney, Nancy Tumavick, Pamela Baldwin, Ken Sherper, Pat Lerner, Richard Hough, Lee Rousell, and many others.

Q: So, it's been thirty years, roughly, a little over thirty since you started on Eastern Europe, '89 or '90.

ICHORD: But then I went to the State Department in 2011.

Q: Okay.

ICHORD: So, and then I retired in early 2016.

Q: Okay. Well tell us when you went to State and why.

TRANSFER TO THE DEPT OF STATE IN 2011 – DEPUTY ASSISTANT SECRETARY OF STATE

ICHORD: Okay. As I mentioned, I had worked with Carlos Pascual, when he was deputy assistant administrator in the E&E Bureau, coordinator at State, economic director at the NSC, and Ambassador to Ukraine. Carlos was asked by Secretary Clinton to establish an energy bureau in the State Department; this idea was also supported by Senator Lugar, who wanted to see energy as a more central component of our foreign policy. Carlos was kind enough to ask me to join him as a deputy assistant secretary for energy transformation, which entailed a focus on the transition to cleaner energy systems, especially in the developing countries. And I was fortunate and very grateful that Paige Alexander, who was E&E Assistant Administrator, was supportive and approved my transfer to State. I saw this as a chance to build on my past efforts and many years of working with State on different regions and issues. I saw the need for a strong central coordinating mechanism in the State Department to pursue these international energy issues. And so, it was an exciting opportunity to help stand up this new bureau and to work with Carlos as well as my colleagues from the other agencies, as we were intensively involved in interagency processes to improve overall USG coordination in the international energy sphere.

It was an opportunity for me to have a global platform from which to work on these issues. And I was also convinced of the importance of increasing our energy diplomacy efforts with developing countries, where energy demands were growing rapidly and which were fast becoming the dominant energy markets of the future. Asia was becoming a center of these future markets and, of course, China's economic emergence was having huge implications for energy geopolitics.

But I did a lot of work in Latin America too. We developed an initiative CONNECT 2022, through the Summit of Americans process. which was interesting, to connect the electrical systems in Central and South America with those of the U.S. and Canada. Secretary Clinton was very supportive of this initiative and announced it in Bogota with the President of Colombia. In addition, Vice President Biden was very supportive of energy collaboration with the Caribbean; and we developed an energy security initiative in that area that had a strong emphasis on renewables as well as imported LNG in some islands.

State was an interesting change from working in Eastern Europe and the former Soviet Union for so many years. During my tenure at State, we participated in the interagency process which established the Power Africa Initiative of President Obama which sought to expand power generation and improve electricity access to households and industry. Although USAID became the implementer of the Initiative, it had strong NSC leadership from Gayle Smith, who subsequently became administrator of AID. According to my calculation, the USG mobilized, despite the problem with Congress in authorizing Export-Import Bank funding, in FY16 about $2 billion for the program, including substantial funding from OPIC and MCC as well as AID.

Although we had a sizable energy program in Europe and Eurasia and we spent a lot of money in Iraq and Afghanistan in energy, Power Africa was a large and uniquely focused effort that was a lot more centralized than most other efforts. It is an interesting model to look at in terms of how to improve the effectiveness and the oomph of our overall interventions in some of these sectors. I mean, you've seen that in PEPFAR (United States President's Emergency Plan for AIDS Relief) in the health sector, but I'm not sure you've seen it in other sectors. I mean, it used to be true in agriculture, right, with CGIAR (Consultative Group for International Agricultural Research) and the agricultural programs.

Q: Right.

ICHORD: But now, the global climate change issue had changed the international landscape a lot, even though it was downplayed during the Trump Administration, which emphasized US dominance in oil and gas and the potential for US exports of LNG, liquefied natural gas. During my time at State, we worked on the clean energy transition issues critical to promoting decarbonization and held consultations in US bilateral economic and strategic dialogues with countries to try to encourage them to make strong climate commitments. We were coordinating closely with the US Climate Envoy's office headed by Todd Stern, who led the US negotiating team in the UN Conference of Parties process, which came together in annual meetings such as in Paris, Copenhagen, Egypt, and Glasgow. Last year's COP28 was in Abu Dhabi and this year, COP29 is convening in Baku, Azerbaijan.

Q: Interesting. Bob, let's just finish your career process. You went to State for five years and then you decided it was time to retire or—?

ICHORD: I was a DAS at State from September 2011 through early 2016 when I retired.

One of the important initiatives I spearheaded at State was on sustainable energy. It was linked to a broader international process to establish a new Sustainable Development Agenda, following on from the Millennium Challenge goals. The original proposal came from UN Secretary General Ban Ki Moon and presented the vision of achieving universal electricity access by 2030. It was headed at the UN by a dynamic African from Sierra Leone named Kandeh Yumkella, who was the UN "energy czar". We participated in an international group, including Norwegians, Europeans, and members from other

countries, which created a formal Sustainable Energy for All program, which in addition to access also included targets for increasing renewable energy and energy efficiency. This effort was integrated into Goal 7 of the Sustainable Development Agenda approved by world leaders at the UN in the fall of 2015.

So, the Sustainable Energy for All mechanism became a global integrating effort that reached out to the IFIs and the private sector. Although there was not a lot of direct funding behind it, the Austrian government again stood up and agreed to support a secretariat in Vienna, where it was established as a formal "international organization." It was initially headed by Yumkella before it was spun off. Then Rachel Kyte, who was vice president of sustainable energy at the World Bank, took over.

Another responsibility of my office was to participate in and support the International Renewable Energy Agency (IRENA), which Secretary Clinton had agreed to create in Abu Dhabi. It was the first new international organization that the U.S. government had supported in many years and the decision was taken on the condition that Abu Dhabi would allow Israel to set up a representative office in Abu Dhabi, which after some time did happen.

Q: Really?

ICHORD: Yes. This was a real battle, but IRENA began to develop, with significant funding from Germany and the US into an international focal point for renewable energy and now has 167 members. While there has been enormous growth in renewable energy, we still have 80 percent of the world's energy consumption coming from fossil fuels. So that's one of the reasons I kept working on this issue when I retired and became a non-resident senior fellow at the Global Energy Center at the Atlantic Council.

Q: After you retired, how many years had you been in government service?

ICHORD: So, I started in July 1976 and ended in January 2016, so it was almost forty years.

During these many years, there was tremendous change in the geopolitics of energy. I look back at how things have evolved since the Arab oil embargo to today's climate change crisis and war with Russia in Ukraine. In the early days energy security was our main concern as we became more and more dependent on oil and gas imports. Now, we're an energy superpower exporting both gas and oil to the world. But critical climate issues have emerged where the US must play a key global leadership role. An additional worry are the tensions with China and China's dominant role in renewable energy supply chains and critical minerals is now on the front burner along with, of course, the energy security concerns of Europe dealing with eliminating Russian energy imports.

I believe US engagement in Europe did make a big difference in integrating the new independent European states into the EU and NATO framework. But now we are back in a confrontation with Russia that you would not have anticipated looking back at the

nineties, with the opening in Eastern Europe and the receptivity of these countries to collaboration with the United States. What happens in Ukraine will be critically important in terms of shaping how Europe and the world progresses, not to speak of US tensions with China, the closer relationships between Russia and China, and between Russia and North Korea, and between China and Iran. Before, we were looking at energy development and pipelines from Central Asia to Europe. Now, China has come in and is dominating Central Asia (with Belt and Road and other engagements) and is expanding its imports of oil and gas from both Central Asia and Russia. With higher oil prices from the wars in Ukraine and now Israel-Gaza and larger Arab world issues, the petrodollar issue has also returned with concerns about Saudi Arabia and its orientation towards Russia and China and attempts to buy-out companies in the US and Europe. But in hindsight, the time and resources we invested in working to support European integration and security were productive and personally rewarding.

Q: I think that's a very nice summary.

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Q: Good afternoon. This is John Pielemeier on June 22, 2023, with our third interview with Bob Ichord.

SUMMARY QUESTIONS

We've covered most of your career and this is a session where we hope to cover some summary questions Bob has and we would like to talk about as well. So, Bob, we left this as you had retired, but I did want to ask you a few questions to get started here about AID effectiveness in the energy field. What do you think were some of the more successful programs that you worked with and then what were some of those that you were not so pleased about?

ICHORD: With forty years working for the government, I have a lot of memories. Overall, I feel very fortunate to have gotten in on the ground floor of global energy issues in 1976 at a critical point in terms of U.S. foreign policy and how energy is so integral to the US political and economic interactions with the world. Starting out at ERDA and DOE was very useful for developing my energy knowledge.

When I moved to AID, I was really excited to work in Asia again and help the agency move from our traditional rural electrification programs to more broad-based , innovative technology, policy and institutional reform activities But I think the high point has to be the historic experience of working in Europe and Eurasia after the fall of the Berlin Wall, and my decision to stay with it for twenty years. By doing so, I could really see the progress that was being made through the AID programs, that is, the movement toward democratic, market economies and how reforming their energy systems helped many of these countries meet the requirements for joining the European Union. I think we forget in today's world how instrumental the US role was in terms of this transition. It wasn't preordained that they were going to adopt systems that were compatible with Western

values. I believe the billions of dollars we spent on the energy sector programs were a good investment in pursuing these goals.

I think a second highpoint would be the significant institutional development and partnerships we created, for example, in the energy regulatory agencies we helped establish in virtually every country of the region. It was an enormous transition, and our efforts helped the countries to better manage their energy sectors and move from centrally controlled to more modern, open, and decentralized market economies.

Finally, it was a great honor to be named as deputy assistant secretary of state and to help Ambassador Pascual build the Energy Resources Bureau at such a critical time. While Secretaries Clinton and Kerry were very different, both recognized the critical role of energy in both energy security and climate change.

Those three things stand out in my retrospective. There were of course other programs that we did – on the Southern Corridor gas and oil pipelines and the Chernobyl closure—which were certainly impactful. It was disappointing that we couldn't develop with Russia a sustainable reform program or that Ukraine was so slow to change. Being on the team that helped to close Chernobyl and develop a framework for Ukraine's energy development was important but issues with regards to the old guard and the corruption and other issues really kept us from moving ahead there as rapidly as we wanted to. But more recently, I see a new generation of younger leaders emerging in both the government and the Parliament that have embraced reform. Ukraine joined the Energy Community in 2010 and since then has adopted many of the required legal, regulatory and market reforms in energy. But they are of course in a fierce fight for their existence at present.

I would also say in terms of successful programs that working with the Europeans, other donors and the IFIs to create the Energy Community treaty after the terrible wars in the Balkans, was also clearly a triumph of my career. I appreciated receiving an outstanding achievement award from the State Department for that work. It was widely recognized as a very important milestone in our policies and engagement in that region.

I have been thinking about why things went bad in Russia even though we had Russian counterparts who wanted reform and to improve their institutions. For instance, the head of the energy regulatory commission was very collaborative. We did have options in working with Chubais and some of the reformers. In the beginning I was even hopeful that Putin after the chaotic Yelsin period would bring some order to the system, since he supported Chubais in his efforts to eliminate non-payment in the electricity system, especially by the government. Of course, he soon showed his true authoritarian colors and developed his oligarchical system. Putin kicked AID out of Russia and that was the final straw in terms of the efforts we had tried under Jonathan Hale, when he was deputy assistant administrator in the E&E Bureau, to engage with Russia on energy efficiency and smart grid cooperation.

Regarding the NIS and the Eurasia side of things, I think the programs in Georgia, especially after Shevardnadze left, were quite helpful, even though, you know, over time there were problems that developed and Russian influence in Georgia is currently quite apparent and troubling. But I think, from an energy standpoint, we helped to establish Georgia as a viable, reliable transit country for the pipelines out of Azerbaijan and helped lessen its dependence on Russian energy. It was a difficult and at times dangerous battle for some of our consultants as they put in place reforms that would clean up the corruption that had developed under Shevardnadze. But we succeeded and the system has really improved a lot from the standpoint of both financial and investment attractiveness. The substantial resources AID put into Georgia were very important for its broader political and economic development in the post-Shevardnadze period.

We worked on the Balkans to try to promote regional cooperation and made incremental progress in most cases. But obviously, the Serbia-Kosovo conflict was a real constraint that continues today with the flare up of problems in the Serb enclaves and continued non-recognition of Kosovo by several EU countries. As I have written for the Atlantic Council, Serbia is still very tied to Russia, importing gas from Russia and receiving arms and military assistance. This issue was one of the tough nuts that we didn't crack in terms of energy. Of course, there were many excellent technical energy people we worked with in Serbia on regulatory and regional electricity market issues. But many Serbians still can't embrace the idea that their future lies with the European Union and not Russia. How do you break through this? Maybe Russia's brutality in the war with Ukraine will help although Serbia has still not supported Western sanctions. Hungary, even though an EU member, is also a big problem and I have seen serious backsliding in the energy sector under Orban. They have entered into new agreements for gas imports from Russia and through Serbia and are continuing, despite the Russian behavior, with building the new Russian-financed nuclear plant at Paks.

But overall, AID, working with the European Commission, was successful in creating a common energy regulatory approach and space in Central and Eastern Europe, the Baltics, Balkans, Ukraine, Moldova, and Georgia that facilitated the integration of energy infrastructure and promoted cooperation. Although Turkey never joined the European Union and continues to play a balancing role between the West and Russia, it did make a lot of progress in terms of reforming its energy and electricity system and has been a reliable partner with regards to the pipelines that go through their territory to Europe and international markets.

I've talked a little bit about AID effectiveness, so if you want me to go on, I can talk about that.

Q: Yes, let's do that.

ICHORD: I have been talking a lot about historical high and low points and how AID programs were affected by those political developments. If you look at what's happened, energy is a very political sector. It's not just a technology-oriented sector. It's a very political sector because of its strategic importance to our way of life, as the lifeblood of

the economy, and due to the large capital-intensive nature of the sector and the huge cash flows involved in the production, trading and marketing of energy. Leaders were keenly aware of the political ramifications of decisions and the strategic importance of the sector from a national, local, and personal position perspective. Corruption in the sector was a constant factor to consider in developing programs and projects and a key factor in terms of the effectiveness of our programs.

A basic lesson that I learned over this period is that individuals and their courage and leadership matters; and identifying people who are leaders and who are willing to take certain risks in terms of reforms is the most important factor. Effective leaders are not just in the government. They can come from the parliament, from the universities, from private companies. It's hard to generalize about where leadership can come from, but basically, it's people who have a vision of where the country should aspire to progress towards and the strength to overcome vested interests and opponents. In AID we talk a lot about the importance of human resource development. I think that is true and why I feel that the accomplishment of developing the energy regulatory commissions, including the participation of many women in these organizations, was especially important and highlights one of AID's comparative advantages, especially with respect to sustainable institutional development.

One of the reasons why I feel that the utility partnership programs between U.S. utilities and European utilities (whether it was Southern Company, Central Maine Power, New England Electric, Houston Power and Light, or Commonwealth Edison) were successful was that they furthered personal interaction and professional development growth on both sides. If you recall, Carol Adelman was the assistant administrator of the E&E Bureau, and she also adopted the partnership, twinning model in the health sector.

We also had great counterparts at USEA, who managed the partnership program under a cooperative grant agreement, especially Barry Worthington, executive director, who passed away a couple of years ago, and Will Polen, who managed the E&E activities. I talked to USEA recently and they said that today they have trouble getting U.S. utilities companies to engage in those kinds of partnerships. But the opening in Eastern Europe was truly historical and the companies were willing to support the US government in its outreach to these countries.

Also on AID effectiveness, I believe we were fortunate to be able to mount a sustained commitment to institutional development over a multi-year timeframe. Regional approaches were very important to institutional development. This is not always the case with AID. Sometimes, the country programs are quite stove piped in terms of their interactions and there's not much cross-fertilization between missions as there could be. From our regional position, we were able to bring that regional glue and strategy to the process and I think that helped because the countries got to see from a peer review standpoint what was happening in their neighboring countries. So, I'm a big fan of bringing different countries together. I brought this concept to my work at State in Central America and Africa, through support for regional power pools. Some of the

lessons and electricity system planning tools were taken from our work in Eastern Europe and applied to the development of regional markets and regional power pools in Africa,

The issue of effectiveness is also relevant with regards to interagency cooperation. I was involved in a lot of interagency cooperation in my various positions. The State Department assistance coordination model for Europe and Eurasia worked quite well for me, because I had good access and regular communications with the coordinator's office as well as the State economic bureau and regional staff. It was a pleasure to work with outstanding coordinators like Ambassadors Pascual, Richard Morningstar, William Taylor, and Thomas Adams. I would say that due to the regular communications and briefings, I didn't have the feeling that they were trying to micromanage the program. They seemed to understand and support the basic strategic framework I had developed for pursuing our energy interests in the region and I was also able to bring my expertise to the broader State economic dialogues that we had with individual countries. So, that allowed me, I think, to establish the credibility of the programs and show their impact. This helped to gain the multi-year space to work on some of these larger institutional development objectives.

Q: Bob, was that kind of across the board or were there occasions where State was not onboard with you?

ICHORD: Well, there was always the struggle in AID and with State over how resources are going to be divvied up in any mission and/or country program. So, I certainly had to make a persuasive case for what I was doing. In some cases, there just wasn't the money to do it because mission directors and Bureau management were dealing with many sectoral priorities. But overall, I would say that we had plenty of money for the staff and kinds of programs that we were carrying out. It wasn't that we created large, ambitious programs and then didn't have any resources to follow up on. So, I think from that standpoint I would say in general, I didn't have a lot of problems in terms of inadequate resources. It was important to have resources that are commensurate with the capabilities to effectively manage them,

A lot of what we did in terms of policy and technical guidance and support to the missions as they developed their programs was very labor intensive. As we moved away from the kind of large-scale, in some cases capital-intensive programs, we did in Asia, to the institutional development policy, regulatory, and management reform activities in E&E, it became very labor intensive. We weren't signing formal agreements with countries for fifty-million-dollar projects, so it was different when you had one to five million-dollar programs that were mainly technical assistance and training and reform based on a memorandum of understanding or non-formal project cooperation document.

Another aspect of effectiveness was our work with the international financial institutions, especially the World Bank and EBRD. Although we were working on improving enabling environments to improve utility commercial performance and attract private investment, the banks were pursuing capital lending programs to modernize the sector infrastructure. We met frequently, both in Washington and London, as well as in the countries of the

region with staff from the banks. So, I was able to leverage the resources we had and work on some of the legal, policy, and regulatory issues that were critical to the development of bankable projects by these institutions. That was particularly true, as I previously mentioned, when we were talking about the privatization of distribution companies because there, they provided support for the transaction advisors as well as loans or guarantees.

We wanted to get private investment into the power sector to begin to open them up since they were so state dominated. But this was difficult in a lot of countries where they saw this sector as a preserve of the state for national security reasons. Most became willing over this twenty-year period to open some portions of the electricity and power sector to private investment. And so, we had some success; but unfortunately, the interest of U.S. companies was limited. Although AID supported enterprise funds in several countries, which were managed by US venture capital companies that had a great deal of independence in lending to private companies, the projects they supported were generally focused on small private SME (small medium enterprise) firms and which were not in the energy sector. So, we couldn't make inroads with regards to the use of that mechanism for energy. And I guess if I looked at it again, that would be an area where I might see some better coordination in using all the tools that we had at our disposal to further private investment, both in the local economy as well as bringing in U.S. companies in joint ventures.

So, John, those are some of the main comments I had dotted down.

Q: Okay. Let me ask you a few questions about your management style. Did you have mentors that helped you develop your management style working with people both in AID and also with your counterparts? How would you describe your management style?

ICHORD: (Laughs) Well, I guess my management style was to try to present to leadership, my supervisors and colleagues in both AID and State a clear, non-technical vision of what we were and should be doing in the energy sector. From a management standpoint I was always looking at how do I improve the understanding of senior management in the agency and at State who weren't very knowledgeable about the energy sector. You know, very few people in AID really came from any kind of energy experience in terms of what we were doing and why.

The other facet of my management was to be collaborative, although I was also quite protective at times when I saw duplication of effort or faced interference with what we were doing. I'm talking here about some of the central AID programs which in some cases we used and in other cases we rejected. We didn't think some were that relevant, in part because they were very technology driven; and while technology is important, it wasn't the key problem that we were dealing with in these countries. We were dealing with institutional and political problems in large part. People sometimes ask: "Why do work in energy? You must be an expert engineer." No, my work really focused on the political and economic dimensions of the energy sector. But I had good technical people working on my staff and contractor teams.

Important to my management was the development of a common strategy and framework for program design and implementation tracking. And I worked in a collaborative way with missions to develop their strategies and projects and tried to link them with regional mechanisms and databases. As I mentioned before, we had some excellent FSNs who were able to manage the projects well and had excellent relations with counterparts in the country. While some of the direct-hire economic officers were generally good, they were not really energy experts; but their FSNs were energy experts from local energy companies or utilities.

I think my style was to conduct frequent visits and dialogues with counterparts in the countries and with other donors and the development banks as I mentioned. I tried through these visits to understand as much as possible about the specific needs of the sector and countries rather than just using a simple uniform model. While we had common themes, we didn't necessarily have a set project design template.

One of the methodologies that we used, especially in the early days as we were getting to know these countries, was based on the World Bank practice of developing an aide memoire. As you know, AID lawyers are very nervous about project officers signing formal agreements with countries, right, because you don't have the legal authority to commit Agency monies. But I needed a mechanism to put in writing some of the understandings from the discussions that we had in these dialogues with ministers, deputy ministers and government energy company CEOs. It was important to make clear what we were about, what we could do to help them; what we committed to undertake in response to the interests they expressed, and what was feasible in terms of the implementation mechanisms and contractors available. This was also important since these documents would feed into the work plans of the contractors. We tried to make these work plans somewhat flexible, to the chagrin of some of our contracting officers, to give me more flexibility in terms of responding to the changing circumstances and opportunities that I saw in different countries. And of course, I did not do this all alone. I had a staff, you know, of six to ten subject experts, as well as dedicated administrative support staff (especially Lennora Fendell) over the twenty years of working in Europe and Eurasia that were given a lot of latitude in terms of their running certain programs and contracts and cooperative agreements. We had this range of contracts, cooperative agreements, grant mechanisms that we used, and I think that was important to the management approach—that is, to have this good toolbox of different kinds of mechanisms that could access resources and develop more partnership and exchange kinds of relationships.

I was strongly supportive of having at least annual meetings of all the contractors and grantees, and mission staff. But it was difficult, you know, because we were working in a lot of countries and had at least a half dozen or more contractors and grantees. But it was very useful to get both mission people and the contractors for the whole region together to share lessons and experiences. We had a tight enough program so that we were able to carry out such meetings for many years. But I think the meetings were key to building a

sense of common purpose, interpersonal relations, and awareness of the larger foreign policy and regional issues at play.

I emphasize again the importance of having good relationships with the State coordinator's office. And in the field, I always tried to meet with the ambassador, DCM (Deputy Chief of Mission) or senior economic officers in the embassies as well as the AID Mission director during my trips. Generally, mission management was supportive of this and recognized the political importance of energy generally in the embassy. And in some cases, I found the embassy more interested in energy than the AID mission, you know, because obviously, in some cases, it was a higher diplomatic priority.

In my early days in the Asia Bureau, I was very influenced by my mentorship by Dr. Norman Brown. As I said, I started working with him at ERDA, Energy Research Development Administration and the DOE and went with him to the AID Asia Bureau.. Norm really helped me develop my approach in the sector and in the development business and how science and technology related to what I was doing. Norman Brown instilled in me an understanding of how renewable energy technologies could transform development. We were clearly at the initial, cutting edge of the transition and before our time in many respects since we were advocating that countries start developing their programs in this sphere, which is now the mainstay of global investment in the power sector, accounting for over two-thirds of new global power investment last year.

Anything else?

Q: Let's talk a little bit about the future. I assume you still run into people from time to time or coming out of perhaps graduate degrees or doctoral programs who are interested in international development and the energy sector.

ICHORD: Right.

Q: What do you recommend if they ask? What do you recommend to them in terms of their employment future?

ICHORD: Well, I certainly would tell them that you can have a rewarding career in the development field and what I guess now we're calling the global south. That's becoming the center of the global economy not that industrial countries aren't going to be the major source of capital and technology, but the challenges of sustainable development in the global south is enormous and the US needs to devote more attention to the issues. Progress is possible. I think of the early days when I went to Bangladesh when it was called a basket case; and to go back thirty-five years later, it's incredible the progress.

Q: Right.

ICHORD: AID has gone through a lot of transitions and different regions have been given priority at certain times. I think though as we look toward the future the overall magnitude of the climate change issue is going to have implications for all the sectors and

countries that AID is working in. So, for young people who are interested in that global issue, AID is a good place to do that because you can really make a concrete difference and have significant resources to work with, even at a relatively young age. AID released in 2022 an agency Climate Strategy, which has specific targets and priorities. President Biden and Climate Envoy Kerry made some progress in ramping up funding for these programs but the upcoming election will be important in determining development assistance funding on this issue and the whole sustainable development agenda.

Q: Now, along that line I'm reminded of another person I interviewed who was actually in the health field and had a great career dealing with emerging diseases, and he said he would recommend people work for AID in part because it was the—it was one of the only organizations that worked in all the sectors together and to link up central—interagency work and think about going beyond your particular technical area and see how it impacted the other areas that your mission was working with.

ICHORD: Right.

Q: Very few organizations that do that.

ICHORD: Yeah, I remember talking with the director of AID HIV office, He told me that AID was shipping all these HIV vaccines to countries around the world under the PEPFAR program. But in many cases, the countries didn't have the necessary refrigeration due to lack of energy and the vaccines would spoil.

Q: Right.

ICHORD: Now that's easy. We've got solar photovoltaic systems that are relatively cheap and can power these refrigerators in the rural clinics and keep the vaccines cold without worrying about fuel for diesel generators.

There are also different career tracts you can take in AID. My tract as a Civil Service employee allowed me to work with sixty plus countries in regional roles rather than just a few overseas postings. So, I took a technical track. But there is also the management track for those who aspire to be mission directors. And there are other policy and administrative support roles that are also important. Computer system and data analytics is a growing field with AI's emergence and AID needs to expand its capabilities in this area.

Government can be a rewarding career and I think that that's still true now as well as in the past. I have always felt that I was at the nexus of policy formulation and program design and implementation. At State I was, you know, representing the United States at a high, policy level, and talking about our interests and what policies we think are important for countries to consider. But the State Department didn't have much in the way of direct program resources to work with. I would long for the days in AID when I was managing these hundreds of millions of dollars in resources and could quickly make something happen on the ground.

Q: Right.

ICHORD: So, I would say that at AID you have that potential. You can have an impact on the policy and environments in these countries, as well as on the direct benefits to the counterparts, the people. And you can often do it at a very young early point in your career, which is not always the case in corporations or other organizations where you have to wait many years before you can really manage the financial investments. You know, we have a lot of people now in AID that are early in their careers but nevertheless have been thrust into significant program management positions, as we saw in Afghanistan, without much experience.

So, we will see how AID develops over the next few years in terms of whether it can expand or whether Congress is going to be less supportive. Certainly, AID was good to me and I had a lot of latitude in terms of what I was doing.

Q: Obviously, you were able to convince people that you knew what you were doing and played so many roles in your various positions that were essential at the time.

ICHORD: Yep.

Q: And vary them as you moved from region to region and sector to sector to sector.

ICHORD: And not only in energy. I learned a lot in forestry, environment, science and technology, so I was able to integrate a lot of these different program areas, including biodiversity, biotechnology, and IPR (Intellectual Property Rights) issues. I think that one thing that AID really needs to develop is a stronger technical innovation focus. I see an Innovation Bureau has been created. That's important for AID as an agency, to be a leader in innovation in development and to work with the USG domestic agencies that have the laboratories and others to bring important technologies for developing country environments.

I just want to leave with three thoughts. One is as you look at energy and developments and where we are today, I think it's important to recognize that we need to deal with what's called the Energy Trilemma, which encompasses energy security, which has been, again, brought to the forefront by the war in Ukraine and Russia's use of energy as a weapon; energy affordability in the sense that you've got a billion people still without electricity; and three, sustainability and climate. These issues are going to be with us for many decades and all of them are important and we need to make sure that the U.S. is a leader and has a strong commitment to this area. AID needs to, in this regard, try to integrate better energy security with the climate and affordability. Because when you dialogue with ministers and key leaders in the countries, yes, they're concerned about, you know, providing electricity to the poor, but they are also preoccupied with issues related to energy security and their country's vulnerabilities, import dependencies, and the costs of energy.

And I think that the final point relates to the broader structure of our international development engagements. Here it's important to look at energy in the context of the traditional breakdown among aid, trade, and investment. All of those are very relevant to US foreign policy given the capital-intensive nature of the energy sector and their importance for the global energy market and trading system. I think there needs to be stronger integration of those functions within the U.S. government. I used to live near Hubert Humphrey down in southwest Washington when I first came to Washington—

Q: Oh, really?

ICHORD: Yeah. Hubert Humphrey was a big supporter of IDCA. Do you remember IDCA?

Q: I do.

ICHORD: International Development Cooperation Agency. I was looking it up. It was established in '79. It was abolished in '98.

Q: But it did very little.

ICHORD: It did very little. It was not given priority by the White House, State or Congress. And it wasn't really staffed to play that kind of coordinating role. I'm not saying that that's the model, I'm just saying that in a sense it was an effort by Hubert Humphrey to bring together pieces so that we could have a more effective and coherent integration between the assistance agencies and the trade promotion and investment agencies. From my experience at State, it was very hard for State to work with and coordinate all these agencies since they all wanted their space to operate. In thinking about energy and some of the issues that I've been working with, I have looked a little bit at the model of the White House Space Council, chaired by the vice president. I pose the question, is there some kind of a White House development council that might be useful in terms of elevating the development issues and bringing these agencies together in a way that would improve the coherence of our strategies, not necessarily the implementation? I should consult with George Ingram, one of E&E former deputy assistant administrators, who came from the Hill and works on these foreign assistance reform issues at Brookings.

So, I think that's my final thought, John. I am not convinced that we have the right structure for the future in terms of engagement with the global south on the range of important energy, climate, aid, trade, and investment issues. Serious consideration of this question is needed, especially given the intense competition we are facing from China and other adversaries in the developing world.

Q: Well, thank you, Bob. I think this is a very—I see it as a very thoughtful and in many ways humble approach to describing your career and I really appreciate you taking the time to prepare for these sessions.

End of interview