Keynote Address

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Scaling Up Electricity Access for Sustainable Rural Development
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Ambassador Spearman

Good morning, and thank you for that introduction. I would like to begin by offering my gratitude for helping to make this conference possible to Mr. Koch-Weser of the World Bank, to Richard Truly of NREL, and to Allan Hoffman of the Department of Energy. I'd also like to recognize all of the staff at NREL and the World Bank whose attention to detail have helped us to frame the challenging agenda for this conference.

This Village Power Workshop is especially important coming on the heels of the recently concluded World Energy Conference in Houston. Finally, after many years, the World Energy Conference may be coming to recognize the importance of the renewable energy sector for rural development. I lived in Houston as President of Texas Southern University, and I can tell you that such a profound shift among those in the fossil fuel and utility industries has been a long time in the making. I believe that this shift is in large part a reflection of the efforts undertaken by the people in this room.

(THE CHALLENGE OF RURAL ENERGY)
I served as Ambassador in two African countries, and have followed the challenges and opportunities associated with village power most closely in Africa. To those of you with a focus elsewhere in the world, please bear with me if most of my examples come from the continent that I know well.

Despite the unrest which still beleaguers much of the African continent, I remain impressed by the emergence of many of the newer leaders as they embrace the basic tenets of democratic governance. They are well aware that accompanying increased freedom and self-governance, economic growth, access to education and health are essential ingredients to an improved social order. The role that energy plays in this process is too critical to rest solely on the statistical probability that power will eventually reach rural and urban communities. It is no coincidence that those countries embarking on the path to democracy—among them Uganda, Botswana, South Africa, and Namibia, are also launching ambitious village power programs.

All of us are cognizant of the reality that economic and social development throughout the developing world is hampered by a lack of access to economical and reliable sources of power. The advent and expansion of global communication-- or what might be called the "CNN Factor"-- has led to the misperception that city dwellers are modernizing, while the rural villages stagnate.

This misperception contributes to extremely high urbanization rates, not only in Africa, but around the world. Botswana has one of the world's lowest electrification rates, and its rural to urban migration rate is among the highest in the world. While I can't prove it, I don't think that this is a coincidence. Minister of Energy Mamadou Diouf of Senegal told me earlier this year that one his government's biggest concerns was Dakar's high urbanization rate. As such, he continued, the urban infrastructure is being strained in an effort to meet the increased health, education and job demands now placed on Dakar and other Senegalese cities. That same sentiment is frequently expressed to me by many Energy Ministries throughout the continent. And for the 40-60% who remain in the rural villages, a disproportionate share are women, as men move to urban areas seeking other forms of employment. These women who remain- aside from some subsistence gained from farming- often have little opportunity to earn a livable income. The irony, of course, is that women are the principal food producers in Africa, and stand to benefit most from improved access to energy in rural communities.

And yet, the people who flee their farms for the urban lights and amenities seldom find themselves better off. The infrastructure of the city does not have enough jobs to accommodate this burgeoning underclass. All of us-- even those in the Western world-- are painfully aware of the consequences that will accrue, i.e. rising crime rates, increased drug use, decaying schools, and the list goes on. The vicious circle is intensified when student test scores and family health suffer as fewer teachers and health professionals are willing to work in areas that are devoid of basic amenities like lighting and hot water.

I am not arguing that providing power in rural areas will keep people from migrating to the cities. Sometimes it will, and one of my observations from a study of a Botswanan village which received solar power is that some urbanized families were returning to their home village. In the words of one such family member, "Manyana looked like a real town now." However, even when rural power does not prevent migration, it can help to improve people's social and economic well-being, so that they are a benefit and not a burden to the urban community that they eventually join.

Village power can help people take advantage of economic development opportunities in rural areas. If farmers have access to markets, reliable power sources can help them increase the value of their products through regular irrigation, post-harvest processing, or improved storage and preservation. In Uganda, coffee farmers lose hundreds of thousands of dollars annually because they are unable to dry their crop sufficiently. The United States Government is supporting a dairy project in Kenya, but without power for refrigeration, much of the product spoils before getting to market. I believe that the promotion of productive applications is going to be critical to the success of village power programs.

(ROLE OF RENEWABLES)

The traditional approach to providing power in rural villages has been to expand the electric utility grid. As South Africa's municipalities and its utility are discovering, grid extension rapidly becomes too expensive. In a rural area near Durban, South Africa, the local municipality pledged a cost cap of 3,500 rands (about $700 at the time) per installation under its rural grid extension

program. A local energy consultant reports that to date they have rarely spent less than one-and-a-half times that, and have now given up that grid extension effort.

With a line extension cost in excess of $10,000 per mile, most developing nations will never be able to bring electricity to the villages where most of the population lives. Instead households must continue to rely on smoky fuels like coal and wood for heat, and dangerous kerosene or expensive dry cells batteries for lighting. Burning wood and dung for cooking expose children and women to harmful indoor air pollution, reduces soil fertility, and accelerates deforestation rates.

I experienced this problem as a personal tragedy, when, as Ambassador to Lesotho, I received a call from the sister of my driver. It appears that on a cold night, he, like many Basotho, lit a coal fire. Unfortunately, he died from exposure to the fumes that built up in his one room apartment.

(THE ROLE OF THIS CONFERENCE)

So what can you in your deliberations over the next few days to overcome the barriers to the expansion of renewable technology and abate this serious state of affairs? Participants at the September 1997 World Solar Summit in Harare noted that the growth of sustainable renewable energy use in Africa faced many barriers:

- Lack of appropriate financing mechanisms for rural customers;
- Inadequate distribution and maintenance infrastructure for renewable energy technologies;
- Poor standardization and quality control measures; and
- Relative inexperience of developing country renewable energy enterprises.

We can overcome each of these barriers, and these topics will form the bulk of the deliberations over the next several days.

We know that the governments of most developing nations are anxious to cooperate in bringing energy to the rural sectors of their economy. In 1989, prior to the civil strife in Rwanda, we prepared a report in partnership with that country's government on the hidden economy-- which is another phrase for the rural economy. The reliability of the women in that sector convinced me that they are anxious to get on with the business of poultry production, making school uniforms, hairstyling and a host of other activities-- if they could only extend their day and get access to lights and power. Those of you here have the means of extending that day. You have the capability of reducing the plethora of debilitating diseases that plague their children by providing hot water and vaccine refrigeration.

You have the capability of making it possible for children to read at night and thus improve their educational opportunities. You have the ability to permit rural enterprises to flourish both day and night. This Workshop may be just the impetus we need to raise the role of renewables in addressing many of the problems affecting the millions who reside in our rural villages.

(THE CALL TO ARMS)

I've talked so far about the need for reliable sources of power in rural communities around the world, and about the promise that renewable energy technologies in particular hold for providing village power. Many of you have heard all of this before, so now I would like to pose a question:

"What's taking so long?"

The World Bank published its "Best Practices for PV Electrification" document several years ago. Why haven't those projects already been replicated worldwide? We're told that rural electrification is a multi-billion dollar opportunity for industry. Sales are increasing, but is anyone in the PV or wind industry in danger of threatening Bill Gates as the world's richest person?

Perhaps the answer is that many of us have been looking for a "magic bullet"-- a single fix that will jump start village power programs around the world. At first we believed the magic bullet was technical: let's make sure the battery is suited to the PV system; let's make sure the wind assessment is done correctly.

For most of this decade, we have believed the magic bullet is access to capital. "If only the perfect finance mechanism were developed," we were told, "thousands of village power projects would take off." Well, now there are a wide variety of large and small finance programs underway, with more acronyms than I care to count. And yet most rural villages remain without power.

Energy plays a fundamental but complex role in urban and rural society, and our approach to making reliable energy available has to acknowledge that complexity.

Taking a single approach to a problem is not unique to renewable energy. As a former Ambassador through two Presidential Administrations, I've learned that you focus on those battles that you have a chance of winning. But given the complexity of energy's societal role, it may prove useful, I think essential, to broaden our understanding.

Let's look at the issue of finance, as an example. We believe we have to address the problem that rural communities lack access to capital. We have developed beyond simply subsidizing rural electrification, and there now exist a growing number of public and private initiatives underway to provide affordable credit. As Chairman of Renewable Energy for African Development, my organization helped design and implement an end-user credit program for solar systems in Namibia, which has since been re-capitalized and expanded with European donor support.

But is addressing credit the only way to make systems affordable? What would happen to worldwide sales if we built PV systems that cost fifty cents per watt, instead of $4? If we can build better and less expensive systems, it might make the job of those providing rural credit easier.

But would even this be enough? If people cannot afford renewables, what can we do to increase their purchasing power? Can we jump-start a process, a "virtuous circle", whereby strengthening

incomes helps people to afford renewables, which themselves can help provide direct economic benefits?

Let's look at another "magic bullet" -- technical training for ensuring system reliability. Many organizations have moved from providing expatriate trainers from the North to providing "Training of Trainers" workshops, where host country nationals are given the capability to develop and conduct technical training on their own. Properly done, this approach can be highly successful, and our group has trained dozens of technical instructors throughout Southern Africa, to the point that we have helped to change the way many technical subjects are taught in African schools and universities. There are even initiatives underway for worldwide trainer accreditation, and certification of those who have undergone that training.

But what if we had renewable energy systems that were so low-maintenance and easy to understand that only the most cursory training were required in the first place? I say this not to discredit the current training approach. Instead I want to stress that energy plays a fundamental but complex role in urban and rural society, and our approach to making reliable energy available has to acknowledge that complexity.

One dimension to this complex puzzle that is only now beginning to gain attention is gender. When I use the word gender, I'm talking about the different complex roles that men and women play in society around the world. One gender difference that has been well established: women are good credit risks. This point was discussed at some length during Monday's pre-conference workshop on gender and renewable energy, and I believe it is important that it be addressed in the many energy finance discussions that will take place over the next several days.

As I mentioned earlier, another gender difference is that women are often the primary energy users in rural communities, and thus the greatest beneficiaries of village power projects. In South Africa, a solar project initiated in the community of Maphephethe was stalled, seemingly against all odds. Realizing this, the project manager switched his approach and hired local women as outreach and sales agents instead of men. These women were able to identify the problems and concerns of their counterparts, and overcame some of the communications barriers that formed when local men addressed the same women. Loan subscription rates increased dramatically, and the South African government is looking to replicate that success.

On the technical reliability front, the fact that men are more likely to migrate to urban areas for employment affected the training component of the Zimbabwe GEF solar project. When Zimbabwe's Biomass Users Network trained rural men in system maintenance, these men promptly took their skills to the city, where they could make more money. The rural women, however, tended to remain in the village after training, and have proven crucial to that component of the GEF project.

Both of these examples point to how we must adjust our thinking in order to ensure both that our projects are successful, and that they reach those who will benefit from them the most. In terms of meeting our initial targets and achieving long term project sustainability, it is important that we make every effort to involve women as well as men.

(CONCLUSION)
There is no single magic bullet that will enable us to rapidly scale up the provision of power in rural villages. If it were that easy, we wouldn't have taken the time-- once again-- to set aside our important day-to-day work, gather together from around the world, and share our ideas and experiences. However, we have learned a great deal working together over the years, and I'm confident that we'll be able to report on our successes, and continue to chart a way forward, when we meet again next year.

Thank you all very much.