Moving Forward: A Proposal

Presented at Village Power 98
Scaling Up Electricity Access for Sustainable Rural Development
Washington, D.C., October 6-8, 1998

Bud Annan

Since the start, the promotion of renewable energy has been a difficult challenge, and as a national priority, it has never ranked high. Beginning with the 1973 oil embargo, U. S. policymakers attempted to assemble "windows of opportunity" to drive the development and create markets for wind, solar, biomass and geothermal technologies. The first window was energy security supported by research and development and tax credits. PURPA and its regulatory requirements built an adjoining window. Opening these windows helped develop the first generation of renewable energy technologies and create a startup U. S. industry but the windows closed without establishing the momentum necessary for sustainability. With the decline of the energy prices in the 1980's and with an emphasis on free markets, no special windows were framed. However, the industry and technology continued to make incremental improvements. The 1990's window constructed in 1993 attempts to integrate environmental and energy policy while maintaining a focus on voluntary actions within free markets.

The renewable energy strategies resulting from the current policy window include:

- Increased government research and development support.
- A call for the removal of historical barriers.
- Proactive cabinet level support.
- Greater cooperation between U. S. federal agencies and between donors.

The implementation of these strategies created a drumbeat of progress. For example:

- Renewable energy product costs have come down and conversion efficiencies have increased resulting in a more cost competitive product particularly for remote markets.
- The Agency for International Development reprioritized its resources and initiated a comprehensive set of sustainable energy for development projects.

- The U. S. Department of Energy cooperating with the Dutch Ministry of Assistance and the World Bank created a special organization to promote energy efficiency and renewable energy projects in growing economies.
- Regional initiatives were designed and implemented in the Americas and Asia.
- Pilot projects in household systems and village hybrids in India, China, Brazil, and South Africa, were designed and implemented using bilateral cooperation.

The World Bank record reflects the progress, particularly in developing niche markets. From a minimal level of effort in sustainable energy at the start of the 1990's, it now supports thirty projects. These projects valued at upwards to $3 Billion include $1.2B in World Bank loans and represent the displacement of 1.6 gigawatts of fossil based generation.

The issue now is scale up to a meaningful and measurable level. It is about progress across 160 countries displacing thousands of gigawatts. However, there is cause for concern regarding the ability to achieve scale-up under the current conditions.

First, the policy dialogue has lost its technology emphasis. In its place is the more controversial issue of targets and timetables. The proposed goal developed in Kyoto for reducing global CO2 emissions by 7% below 1990 levels by 2010 is criticized as being unrealistic and economically unsound. There are fears of unjustified restrictions on the economy and an adverse impact on the operational readiness of U. S. armed forces. The lack of developing world agreement has brought forward movement to a crawl. The Kyoto agreement and its implementing mechanisms remain controversial.

Second, creating sustainable markets is more difficult than originally believed. The Village Power Conferences, present information that demonstrations to reduce technical risks are not sufficient to ensure sustainability. Roger Taylor of the National Renewable Energy Laboratory correctly points to the institutional aspects necessary for building markets including partnering, maintenance, cost recovery, development coordination, planning tools, economics, language and culture. There is also new information that confirms the importance of commercial replication

and attractive long term financing in achieving successful market development. Further complicating sustainability is that as demonstrations move from household systems to village and even grid tied systems, the investment and risks go up. The Brazil village hybrid indicates an investment upward from $200,000 is needed. In order for the village systems to be a viable business, it is estimated that a developer would need a market of 15 to 20 such systems in a tight geographical area in order to support the necessary repair and maintenance infrastructure. Finally, the new complexities of the energy market worldwide created by privatization and restructuring coupled with the large risks of new technology in new institutional settings are influencing the ability to create sustainability. Before the customer was the local utility, but with privatization defining the customer becomes less clear.

The changes in the renewable industry worldwide have added a third difficulty. Manufacturers have become commodity suppliers, pushing system integration as close to the end user as possible. This segment of the industry is very dispersed, generally unorganized, and lacks resources for market development. Thus, an industry already undercapitalized has little incentive to expend corporate resources and time in demonstrating technology, developing new markets and underwriting the development of distributor and system integration businesses in high-risk economies. The industry now no longer forces programs to happen. It has allowed itself to wait for programs to be designed by others.

The biggest concern regarding the ability to move forward with scale-up including the ability to deal effectively with these difficulties is the lack of leadership both public and private. The lack of agreement between administration and Congressional officials over budget, the importance of environmental issues, and the role of the federal government has created a polarized and cautions policy environment. At best, it is a shared leadership too willing to compromise. The renewable energy industry is short on resources, lacks a collective drive, and has become only marginally effective. Bechtel, Battelle, and the Midwest Research Institute recently awarded the operation and management of the National Energy Laboratory, is well positioned to assist in building bridges between the public and private sectors. Nevertheless, its capability for leadership is tied

to federal actions. Non-governmental organizations remain an active catalyst for sustainable development, provide the analytical, and project underpinnings for an energized leadership.

If the problems are our making, then we can generate the solutions, and we must act quickly. We cannot afford to mark time because world economic development does not stand still and every energy decision from building buildings to power plant construction is a 30- to 50-year decision. Old power plants need to be retired not relicensed. If increases in fuel prices through tax increases are politically unthinkable then policies must turn to regulation, technology support, and a new value system. These elements when combined with electricity restructuring and concerns about the environment frame a new window of opportunity.

First, we reestablish industry leadership. However, the new leadership is much different from the leadership of the early 1990's. It is a new membership of energy technology providers and technology users. These industry leaders not only recognize their environmental responsibilities but also recognize the market potential of growing economies.—the need for energy that provides access to new communication, learning and entertainment products and services. This new industry leadership seeks engineering solutions and new opportunities not excuses. The new leadership has a sense of urgency and a commitment to put into place policies, strategies, and projects so as to have measurable impact by 2010.

The first priority for this new industry leadership is to bring the policy focus back to technology development and its deployment. It seeks to raise the priority of renewable energy as a matter of national policy. Working with the Administration, Congress, multilateral financing agencies and nonprofit organizations, the leadership works to reestablish trust and a cooperative attitude in finding a common baseline and commitment for sustainable technology based growth. There is new fresh information to support this new dialogue. It includes the comprehensives report submitted by the President's Committee of Advisors on Science and Technology entitled "Federal Energy Research and Development for the challenges of the 21st Century", the study produced by the eleven National Laboratories entitled " Technology Opportunities to Reduce U. S. Greenhouse Gas Emissions", the new information produced by the Village Power Workshop on

critical elements for sustainable success, as well as the new realities of today's energy marketplace.

Next, the leadership establishes a dialogue with the leaders of national and international agencies to reach a consensus on a set of sensible strategies. The strategies flow from the 1990's drumbeat of progress but with a greater attention to incentives and creating preferences for renewable energy. Strategies focused on fundamentals that unlock value are needed. They include:

- A thirty-percent increase in government funding for technology development and deployment. In addition, fiscal incentives in support of state restructuring efforts and greater support for bilateral cooperation are needed.
- Putting market forces to work by changing the economic signals. Tradable credits appear to be a promising new dynamic market force. Every renewable installation should carry with it tradable credits that has value to the energy industry as well as to governments.
- Designing and implementing a worldwide initiative on renewable energy based rural electrification that moves beyond household systems. The demonstration of household systems is a success. Attention must now turn to policies that replicate the success and move on to energy for productive uses—communication and education and job creation.
- Building Capacity. There are many models that show promise in building in country capacity. The Winrock Foundation is one. There needs to be a strong long lasting commitment to build capacity at all level of the economic and political system of growing economies.
- Enhancing technology transfer. Governments of growing economies need to strengthen intellectual property laws, relax tariffs on imported equipment's, and implement tax policies that stimulate investment while at the same time create performance standards. Long term technology transfer is effective if there is a movement away from grants and gifts. The private sector demands transparent and fair standards for competitive investment and financial markets that live up to international standards.

The third and final element of the new leadership strategy is to create a sense of urgency. Large scaled-up projects that are not government selected projects or politically connected ventures are a good way to focus. Industry needs to create ten such fast track projects. It should also

spearhead the creation of an international team of technology and business experts to review in place projects. Development oriented agencies desperately need a set of best practices, legal frameworks, and financing strategies that allows the rural poor access to energy. Finally, the leadership should promote the successes and fix the failures.

We are fortunate to see corporations responding to this leadership challenge. British Petroleum with its announced strategy to cut greenhouse gas emissions by 10% of their 1990 levels by 2010 has "set up a whole new level of expectations for other corporations." Shell has joined with its announced effort to bring solar-based electricity to 50,000 homes in South Africa. Arizona's Corporation Commission is leading with its mandated solar portfolio standard as a critical element of the electricity restructuring to take effect January 1, 1999. Northern States Power joins the leadership with the world's largest single wind generation facility--enough electricity to provide for the residential needs of about 43,000 Minnesota households. The Village Power Conference will create other world leaders. These leaders challenge conventional thinking and change the vocabulary on the way we explain progress. They educate us and create a new sense of opportunity. It is the start.