# COMMITMENT TO NUCLEAR

It is a great privilege for me to speak at this special occasion. I am extremely pleased to be able to meet with so many friends engaged in nuclear power in the free world, with whom I am well acquainted or just met for the first time.

As all of you know, the prosperity of our society depends largely on the availability of energy resources. When we speak of energy resources, crude oil seems to play a significant role, but its consumptive nature worries us and drives us to look for other renewable forms of energy, Both the Republic of Korea and the Republic of China are unfortunately scarcely endowed with indigenous energy resources. Before the techniques of other renewable forms of energy, i. e. solar, tidal and wind power, become commercialized, many countries in the world, including the Republic of Korea and the Republic of China, determined to develop the nuclear power generation decades ago.

Today the nuclear power, while accounting for one-sixth of the world's electricity, plays an even greater role in certain countries such as France, Belgium, Switzerland, and the R. O. C. Over one-half of these countries' electricity supply comes from nuclear power in 1985.

Under the guidance of our government's energy policy, Taipower's development of nuclear generation program started in mid-1960's when the Nuclear Power Committee was established to be responsible for studying this new energy source and technology, for planning, and for training of nuclear personnel. There are now six light water reactors in operation in Taipower's system totalling 5,144MWe in

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installed capacity.

The management policy of the utility is a decisive factor in making nuclear power a viable option. Taipower, like other utilities in the world, bears its responsibilities including protection of the natural environment and assurance of safe plant operation, while it is devoted to supplying adequate and reliable electricity to all its customers at the lowest practicable prices. Safety, reliability and economy of nuclear development are emphasized.

In our endeavors to improve our plant safety and reliability, I would like to especially point out that Taipower has been actively involved in various international cooperation programs with foreign utilities, utility sponsored owner's groups, research laboratories, universities, other societies and governmental agencies. Joint studies under these cooperative programs include, to name a few, thermal-hydraulic code assessment with USNRC, severe accident rulemaking with AIF; large scale seismic testing, hydrogen control and stress corrosion cracking studies with EPRI of U. S. A.

The Joint study program of Probablistic Risk Assessment(PRA) for Kuosheng Nuclear Power plant with Atomic Energy Council, Institute of Nuclear Energy Research of R. O. C. has attracted considerable attention. It was performed to determine the likely frequency of core-melt accidents and the magnitude, composition and frequency of fission products released in an accident. This PRA technique is being employed as a base to develop Taipower's systematic preventive maintenance program and to evaluate the operating plant design improvement. The Kuosheng PRA had been

completed and the Maanshan PRA has been started since October last year.

To improve plant reliability, an Availability and Reliability Improvement Program(ARP) was set up for all of our completed nuclear power projects. The sources for selecting improvement plans include: regulator requirements, USNRC IE Bulletins, TMI experience, world nuclear operation and maintenance experience and information from nuclear industry. The total budget for the ARP of Chinshan and Kuosheng Nuclear power plant is NT$3.8 and 4.5 billion respectively.

In order to further promote plant availability and reliability, a good and thorough refueling outage plan is made in advance to include all the activities during outage. By working with consultant from NSSS vendor, Taipower has obtained necessary experience in refueling outage planning and management. In recent years, those works have been done by ourselves and the result achieved is getting better and better.

In awareness of the fact that reactor trip reduction is the most effective way to improve nuclear safety, plant availability and power system stability, Taipower is conducting a Reactor Scram Reduction Program to reduce reactor trip by various attainable methods.

Our efforts in improving our plant safety, availability and reliability have proved to have very fruitful results as the performance of Taipower's nuclear units in terms of capacity factor and availability factor is well above the average value of all nuclear power plants in the world. Moreover, it is inspiring to mention that Chinshan Unit I was in uninterrupted operation for 339 days from February 21, 1983 to January 25, 1984 and the Unit 2 achieved a world's new record for BWRs of continuous operation for 418 days on March 25 of this year.

To countries such as ROK and ROC, nuclear power is still a reliable and economical alternative to oil before other new energy

sources are commercialized. Taipower has proposed to the Government its phase 2 nuclear development program. Under the scheme, Taipower's Fourth Nuclear Project with two 1,000MW LWRs is schedualed to be commissioned in 1994. Although this project, during its approval process, casued controversies from the general public and the legislators, Taipower has been making efforts in clarifying all the concern as generated over the past year. From the indication of economy revival in the first quarter of 1986 in R. O. C. and the forecast of electricity demand in 2000's, we are confident that the approval for construction of the Fourth Nuclear Power project will be granted in the immediate future.

To prepare for the new nuclear project, Taipower launched some innovative programs in 1985 in order to upgrade design quality, shorten construction schedule and reduce construction cost. They are: optimization of nuclear design program with 43 projects in progress, employment of centralized project management concept and advanced construction methodology. Besides, Taipower is studying the standardization of plant design and analyzing its cost and benefit effect in adoption.

We are going to present a technical paper in the Conference, which describes the details of the approaches mentioned above for those of you who are interested. I sincerely believe that this Conference will serve as a very effective forum to exchange precious, wide, and in depth experience among all participants in making full utilization of nuclear power to the well-being of our society and people.

I wish all the success to the Conference. Thank you.

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(President, Taiwan Power Company)