

Country Report - WIN Taiwan
The 16th WIN Global Annual Meeting
26-30 May 2008 at Marseille, France

I. STATUS OF NUCLEAR PROGRAMS IN TAIWAN

A. Nuclear Power Facilities and Performance

In 2007, 98.24% of energy sources were imported in Taiwan. Taiwan's six existing nuclear power units, operated by the state owned utility Taiwan Power Company (TPC), generated a total of 40.55 terawatt-hours (TWh) of electricity (gross) in 2007 – a record high and up 1.7% from the previous year's figure (39.87TWh). The three nuclear plants at Chinshan, Kuosheng and Maanshan, with two operating units at each site, provided a total installed capacity of 5,144 MWe, accounting for 11.32% of the total installed electricity capacity in 2007 – compared to 11.41% in 2006.

Performance wise, the average capacity factor for all six units in 2007 was 90.28%, up from 88.93% in 2006, and best record ever in Taiwan's nuclear power operation. The annual average number of abnormal events per unit was 2.33 (or 14 events for all six units), and the average number of automatic scrams per unit was 0.33 (or 2 scrams for all six units) in 2006. Production of solidified low-level radioactive waste from all six units totaled 259 drums, also best record ever, down 21% from 327 drums in 2006 and down as much as 57% from 601 drums in 2005. A new record was also set at Unit 1 of Maanshan plant for a refueling outage of 31.62 days, shortest ever for a TPC's nuclear unit.

Construction continues at Lungmen plant for two ABWR units with 77.29% completion by the end of February 2008. The project had encountered significant delays due to the suspension in 2000, rising price of construction materials, finding new subcontractors to replace the bankrupted and negotiating new contracts to succeed the expired. Commercial operation has been reset in 2006 as 2009 and 2010 for units 1 and 2, respectively, and fuel loading is expected by end of this year for unit 1.

B. Highlights of Nuclear R&D and Regulatory Activities

- Major research focuses of the Institute of Nuclear Energy Research (INER) include: time limited comprehensive safety assessment for Chinshan NPP, nuclear power uprate for existing NPPs, NPP license renewal related

studies, development of D&D technology, development of fuel cells and solar and wind power generation systems, and development and commercialization of radiopharmaceuticals.

- Among major nuclear regulatory activities during the past year include: establishment of a nuclear knowledge management website, completion of review for power uprate for Kuosheng NPP, oversight of the installation of automatic scram systems at NPPs during strong earthquakes, advancement of the electronically oriented radiation protection control operations, strengthening of safety controls of high-risk radiation sources, development of a mammography quality control program, and review and conditional approval of the preliminary safety analysis report (PSAR) of the construction license application for the spent nuclear fuel dry storage facility at the Chinshan NPP.

II. WIN TAIWAN

A. About WIN Taiwan

Founded in 1994, WIN Taiwan (<http://www.wintaiwan.org>) now has 110 national members and 33 global members. The current (2006 – 2008) president and vice president of WIN Taiwan are Dr. Shin Chang, Section Chief of AEC's Nuclear Regulation Department, and Ms. Nancy Mei-Ling Tu, Inspector of TPC's Department of Nuclear Generation, respectively.

B. Activities and Achievements (April 2007 – April 2008)

- **WIN Global Annual Meeting** *21-27 April 2007*. A delegation of ten members, led by WIN Taiwan President Dr. Shin Chang, attended the 15th WIN Global Annual Meeting held at Bali, Indonesia.
- **Science Excursion** *12 July 2007*. About forty school children and parents visited TPC's Northern Visitors Center and a radwaste volume reduction center. In addition to the guided tours, a lecture on radiation and everyday life was given, followed by a panel discussion, all conducted by WIN

members. Visits of nearby cultural and scenic attractions were also arranged on the way back, including Shihmen Wind Power Station.

- **WIN Taiwan Annual Meeting** *9 August 2007.* WIN-Taiwan and ANS-

Taiwan Section held a Joint Annual Meeting at the National Tsing Hua University's newly re-established Institute of Nuclear Engineering and Science. Dr. Yen-wan Hsueh Liu, also a member of WIN Taiwan, was appointed director of the Institute. Two assemblies, together with many faculty members and graduate students totaling over 100, joined together after business meetings to listen to two short presentations on status of nuclear related international cooperation projects and a special speech on "Biological Diversity" which was delivered by Dr. Anne Chao, National Chair Professor of the Statistics Institute of the University. Two field visits were organized for the afternoon: TPC's Tatan gas-fired power plant and the Image Museum of Hsinchu Culture Bureau.

- **Science Excursion** *28 September 2007.* Over forty female opinion

leaders near one of the potential LLRW disposal sites participated in a workshop on "understanding radiation and radioactive waste". The workshop included a tour to TPC's southern Visitors Center and a nearby museum of marine biology.

- **Fall Seminar** *7 December 2007.* Ms. Yi-Yin Lin, CEO of Hondao

Volunteers Foundation, was invited to speak on "how to participate in voluntary work to make the society a better place to live". About 35 attended the seminar.

- **New Year Gathering** *11 January 2008.* An evening gathering was held to

bid farewell to the year of pig and welcome the new year of rat.

- **Steering and Advisory Committee Meetings** *1 June and 1 November*

2006, 11 January and 18 March, 2008. The latest meeting focused on

detailed planning for the programs and activities to be conducted during the later half of 2008.

C. Upcoming Activities

- *May 2008*, a delegation of six will represent WIN Taiwan to attend the 16th WIN Global Annual Meeting in Marseille, France.
- *June 2008*, spring seminar is being planned.
- *August 2008*, planning is now underway for the 2008 WIN Taiwan Annual Meeting, to be held jointly with the 2008 Annual Meeting of ANS - Taiwan Section at the Lungmen Nuclear Power Plant. Technical and cultural tours will be conducted following the business meetings and joint seminar.
- *November 2008*, Also in preparation is an international forum on communication and public opinions on nuclear power issues including siting of waste repositories.