

# 臺灣反核運動現況報告與公投反核四策略建議

## Current Status of the Taiwan No-Nuke Movement and Strategic Suggestions for the Referendum against Nuclear Plant #4

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### 臺灣核電廠及核廢料現況

#### The Current Situation of Taiwan's Nuclear Plants and Nuclear Waste

台灣現有運轉中之核一、核二、核三各有兩機組，每機組之發電容量分別為 636 MW，985 MW，951MW，核能發電已佔全國發電量 19%。而發電容量 1350MW 兩機組的核四廠即將興建完成。核四廠若運轉則核能發電的比例更會提高。1994 年核四廠之興建之預算案在爭議中於立法院通過。1996 年 5 月 24 日，立法院上午已通過廢核案，當晚台電卻強行開標，決議由美國奇異公司得標。民進黨新政府雖在 2000 年十月底宣佈核四停建之廢核政策，試圖推行非核家園理念，2001 年初卻在立法院的非核家園決議下宣佈核四復工續建。即將興建完成並添加燃料棒試運轉的核四廠，不僅將提高台灣用電的核電依賴度，也將為台灣帶來前所未有的核電安全性危機。

Each of the three current running nuclear plants in Taiwan, plant 1, 2 and 3, has two reactors and the generating capacity of 636MW, 985MW and 951MW respectively. The output of all three nuclear plants makes up 19% of the total electricity consumption in Taiwan. The construction of Plant 4, which has the two reactors of capacity of 1350 MW, is almost complete. If Plant 4 comes into operation, then the percentage of nuclear power will grow even higher. In 1994, the much contested budgetary bills for nuclear Plant 4 was approved by the Legislative Yuan. Then on May 24<sup>th</sup>, 1996, the Legislative Yuan passed the “No Nuke Bill” However, that night, TaiPower Inc opened the bidding for nuclear plant 4. American company GE won the bid. In October of 2000, the newly elected DPP government announced the no nuke policy and halted construction of Plant # 4. However in January of 2001, the Legislative Yuan voted to resume construction. As Plant 4 is completed and test runs with fuel rods begin, Taiwan is becoming increasingly reliant on nuclear power. Moreover, Plant #4 will threaten Taiwan's nuclear safety like never before.

擁核者雖主張在石油飆漲及地球暖化的現在，核電較具經濟且安全，但事實上則不然。諾貝爾和平獎得主高爾對此論點也質疑核電廠之造價為所有發電方法中最高也是耗時最久的。以台灣為例，核四廠之興建至目前為止已花費 2737 億，遠超過原預算之 1697 億。

As oil prices soar and global warming worsens, Pro-nuclear advocates claim that nuclear power is cheaper and safer. However, that is not the case. Nobel Peace Prize winner Al Gore also challenged this claim by pointing out that the construction of a nuclear power plant was the most costly and time consuming of all power generating methods. For example, up to today, the construction of Plant 4 has cost 273.7billion TWD (8.6 billion USD), which far exceeds the original budget of 169.7 billion TWD (5.3 billion USD).

核電不僅有核電廠自身安全管理之風險，同時也增加了世界之核武擴散風險。台灣核四廠的危機根源為台電的無經驗及管理缺失。1996 年核四廠工程由原預設之統包改為分包，台電首次獨立負責核四廠機電整合之工作，核四廠之機電整合狀況之多令人不敢想像。以今年為例，從 2010 年 3 月台

電疑似隱匿核四廠多樣設備故障之開始，核四廠在未運轉前就已危機重重。2010年5月又因人員維護問題而不斷電系統故障與內在保護元件燒毀之事件。2010年7月更被周刊報導設計錯誤，將容易導致訊號傳送錯誤。負責督導核四技術的美國URS公司則認為核四若不重建可能引起嚴重核安意外。7月9日更發生了28小時核四廠區電源全部中斷之事件。此事若在核能機組添加燃料棒試運轉期間發生，可能有導致輻射外洩之風險。在此之後也接二連三發生核四電廠短路，斷電，消安作避之事件。再者，台灣位於地震帶上實不適合興建核電。地震帶給核電廠的危險性從日本新瀉6.8級地震導致柏崎刈羽核電廠六號機輻射水外洩一事即可窺知。柏崎刈羽電廠因地震停工至再度開始全面運轉至少需四年，而估計每年損失達七千億日圓。核四廠之ABWR機組與柏崎刈羽為同一機型，若發生大地震，可能引發之核安問題令人懼怕。

Not only does the nuclear plant carry its own security management risks, it also increases the risks of nuclear warfare expanding globally. Taiwan's Plant 4 crisis is rooted in TaiPower Inc's lack of experience and mismanagement. In 1996, the construction of Plant 4 was changed from a turnkey solution international bid to a components sub-contract. This was the first time TaiPower was independently responsible for the integration of the generator and reactor. During integration, an unbelievable number of unexpected incidents arose. For example, since March of this year, Taipower has been covering up rumors that many parts in Plant 4 are malfunctioning. Plant 4 has not begun running, yet already it is crisis ridden. In May of 2010, maintenance problems resulted in UPS malfunction and caused a fire which destroyed protective devices. In July of 2010, a magazine reported that Plant 4 had mistakes in its design which could easily cause signals to be mis-transmitted. URS, the American company in charge of overseeing the technology in Plant 4 held that if Plant 4 was not reconstructed then it could spark a serious nuclear accident. On July 9<sup>th</sup>, a power outage occurred which affected the entire Plant 4 area and lasted for 28 hours. If an incident like this happened while refilling fuel rods into the reactor during test runs, it could result in a radiation leak. Since the July incident, Plant 4 continues to see short circuits, power outages, and other safety mishaps. Moreover, Taiwan is geologically unsuitable for constructing nuclear power plants because the island falls of a fault line. We know the danger that an earthquake can cause to a nuclear plant by looking at the 6.8 magnitude earthquake which hit Niigata Japan and the Kashiwazaki-Kariwa nuclear plant. The quake caused radioactive water to leak from the plant's No 6 reactor. Due to the damage caused by the earthquake, Kashiwazaki-Kariwa plant suspended operation. It is estimated that it will take at least 4 years and lose 7 trillion JPY (81 billion USD) per year in order for the plant to fully operate again. The ABWR reactor in Taiwan's Plant 4 is the same model as that in Kashiwazaki-Kariwa. It is terrifying to imagine what could happen if a massive earthquake should hit.

核能雖號稱是不排放二氧化碳，較不會導致地球暖化，但其留下的低階與高階核廢料在環境與安全兩方面上都是大問題。高階核廢料留下之鈾，鈾是目前科技無法解決之萬年毒物，且也有致癌及核武擴散之危險。在核廢料處理上，高階核廢料再處理之研究屢遭失敗，且易造成核武擴散。低階核廢最終儲存場是另外一個爭議問題。經濟部在2008年8月29日公佈了低放射性廢棄物最終處置場的候選廠址，根據選址條例-“低放射性廢棄物最終處置設施場址”應經過地方性公投之同意。且根據原住民基本法第31條，政府不得違反原住民族意願，在原住民族地區(台東達仁鄉為候選場址)內存放有害物質。

Although pro-nuclear advocates claim that nuclear power does not release CO2 and does not contribute to global warming, its high level and low level radioactive waste raises many environmental and safety issues. High level nuclear waste contains plutonium-239 and uranium-235. Both substances are radioactive

toxic and can not be treated with today's technology. Moreover, they are cancerous and raise the risks of nuclear warfare. The methods used to reprocess high level wastes have been ineffective and can easily lead to the expansion of nuclear weapons. Where low level waste is disposed of is another controversial issue. On August 29<sup>th</sup> of 2008, the Ministry of Economic Affairs announced the final deposit site of low level nuclear waste, as according to regulations, must be approved of by the local people through a referendum. As according to Act 31 in the Indigenous People's Basic Law, the government can not go against the will of the indigenous people and store harmful substances on their land. DaRen Township of Taidong County is a candidate for the final deposit site.

## 現階段反核四策略：兩層次的核四公投

### Current Strategy against Nuclear Plant 4: Two-Stage Referendum

1991年，目前擔任呂秀蓮前副總統所創辦的國家展望文教基金會董事長，也是前立委，現任台北大學經濟系的王塗發教授，提出了一個「兩層次公民投票」的反核論述。本文發表於1991年1月7日的中國時報，以及後來再度以「核四廠兩層次公民票決論」為標題，於1991年2月20日發表於自立晚報。

In 1991, Tofar Wang, a professor of economics at National Taipei University, proposed a "Two-Stage Referendum." Wang is also currently the chairman of the Institute for National Development, a foundation established by former vice president Annette Lu. His "Two-Stage Referendum" was first published in *The China Post* on January 7<sup>th</sup>, 1991. It was later published again under the title "Two-Stage Referendum for Nuclear Plant 4" on February 20<sup>th</sup>, 1991 in the *Independent Evening Post*.

王教授的主張：(1) 核電廠所在地之三十公里逃命圈之公民為第一層次。若三十公里逃命圈公民投票否決，則該核電廠不能興建。即使逃命圈內的大多數公民同意興建，該核電廠興建案就要進入第二層次，即(2) 全國公民投票決定。因為核電廠對三十公里逃命圈之人民之安全影響最大，但核災變時輻射外洩對全國人民還是都有重要影響，故最終必須全國人民公投決定。

Professor Wang's proposal stated that: Stage one referendum would be voted on by the local people living within 30km of the nuclear plant, the escape zone. If those in the escape zone vote against building the nuclear plant, then the plant can not be constructed. However, if the locals vote in favor of construction, then the nuclear plant proposal must go on to stage two, which is a referendum voted on by all citizens. Although a nuclear plant affects those in the escape zone the most, a radioactive leakage from a nuclear disaster affects the entire nation, and thus should be voted on by all citizens.

王塗發教授此論述，在當時看起來好像是個完全不切實際，理想掛帥的純理論，相信至今還沒有人相信在台灣有將其實施的可能性，尤其是主導台灣政局的國民黨不只擁核，而且極端排斥任何議題之公民投票。然而我認為當今被譏為籠公投法之現行公投法，已經賦予核四廠兩層次公投的法源。其本實施的方法如下：

At the time, Professor Wang's proposal seemed completely unrealistic, like an idealistic theory. Today the likelihood of implementing his proposal still seems bleak, especially with the current KMT government which not only embraces nuclear power, but sharply rejects any issues regarding a referendum. Although the referendum law has often been criticized as ineffective, it has laid the legal groundwork for the Two-Stage

Referendum to proceed. This is how it can be implemented:

反核團體應立即於新北市發動主文如下的地方性公民投票，其提案階段約需一萬人( 新北市之公民數之千分之五 ) 連署階段則約需十萬人。這是台灣反核團體可達成的工作。新北市公投反核四之主文建議如下：

Anti-nuclear organizations should immediately launch a local referendum in New Taipei (Xinbei) City. The proposal stage requires 10 thousand people (0.5% of the local population). The petition stage requires 100 thousand people. This task is one that Taiwanese anti-nuclear organizations are able to achieve. The suggested referendum for New Taipei (Xinbei) City is as follows:

你是否同意台電公司核四廠進行「添加核燃料棒試運轉」？

Should TaiPower Inc proceed with the “nuclear fuel rod test run” of plant #4?

與此同步，反核團體亦可在五都選舉這段時間於全國各地，提出主文為：「你是否同意政府於台北縣貢寮鄉台電公司核能四廠興建完工後，依計畫並聯運轉發電？」之提案人連署工作。此階段無送件時限，約需九萬人，可在全國各地進行，故可於五都選舉期間於選舉造勢場進行徵求提案人之連署工作。此全國性工作，也可與其他議題如：公投廢除公投審議委員會或修改地方制度法之鄉鎮長直接轉任區長之議題同步進行。

At the same time, as elections approach, anti-nuclear organizations can go around the country with a petition: “After the construction of TaiPower nuclear plant 4 in Gongliao New Taipei (Xinbei) City is completed, should the government proceed as planned by going online and generating electricity?” The petition can be sent in at anytime without any time constraints. During the coming elections petition initiators can be sought. For the petition itself, approximately 90 thousand people are needed. The petition can be nationwide. Other issues can also be raised alongside this petition, for example: Using a referendum to disband the Referendum Review Committee or amend local laws which allow township mayors to directly transfer to district mayors.