

# Taiwan's Nuclear Debates and Implications<sup>1</sup>

## Introduction and Overview

Taiwan in 2013 is in the midst of a protracted and contentious national debate over the role of nuclear power in the country's energy supply, economic development and overall modernization. The scope of the debate involves a broad range of Taiwan government and society, including national economic and energy policy elites, local government leaders, legislators, media, and various non-government interest groups including environmentalists, businesses and nuclear and consumer safety activists. The debate arguably has become among the most salient issues in the domestic politics of the highly competitive democratic system in Taiwan. It poses serious challenges for the ruling Nationalist Party (Kuomintang—KMT) administration of President Ma Ying-jeou and for the strongly oppositionist Democratic Progressive Party (DPP). The current upsurge in Taiwan's nuclear power debate has deep roots. It follows past such episodes, notably an impasse over a decade ago between a newly elected DPP president and a KMT controlled legislature, which saw mass demonstrations and attempts to officially recall the president.

This article assesses the causes, status and outlook of Taiwan nuclear energy debate against the background of brief discussion of Taiwan's debates over other aspects of nuclear developments, notably debates over Taiwan's indigenous development of nuclear weapons and the role the country has played and will play in international nuclear non-proliferation efforts. Taiwan has a long record of debate over the pros and cons of developing nuclear weapons. That debate has been quiet and seemingly resolved for many years. Taiwan also has a peculiar position in the international nuclear non-proliferation system, especially as a result of its loss of membership in the United Nations over 40 years ago. China exerts strong efforts to keep Taiwan out of international bodies that regulate nuclear proliferation and other international bodies where statehood is a requirement for membership. The limited discussion and debate that takes place over Taiwan's role in the international non-proliferation regime is carried out among a small circle of specialists and other government and non-government elites in Taiwan.

The contentious Taiwan debate over nuclear energy involving a wide range of specialists, leaders and other elites along with a broad range of popular representatives has developed separately from the much less prominent and generally elite and specialist-led discussions and debates dealing with nuclear weapons development in Taiwan or Taiwan's role in international non-proliferation efforts. However, the nuclear energy debate does reinforce a strong recent tendency in Taiwan to choose paths of future development that involve eschewing more nuclear material in Taiwan. This trend adds to circumstances that go against any possible revival of nuclear weapons development in Taiwan. And it adds to forces moving Taiwan to the forefront of international efforts to strengthen the global nuclear non-proliferation regime. Overall, these developments are consistent with U.S. interests and policy. At the same time, however, the debate over nuclear energy in

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<sup>1</sup> Draft paper for conference regarding Taiwan, China and the United States, Carnegie Endowment, Washington DC October 3, 2013 by Robert Sutter, Professor of Practice of International Affairs, George Washington University.

Taiwan has implications for Taiwan's approach to China that are viewed unfavorably by Americans concerned with Taiwan's resiliency and autonomy in the face of China's rising power and influence

### **Taiwan Debates Nuclear Energy**

The discussion and debates among contemporary Taiwan government and non-government elites and specialists underline a general consensus in Taiwan today regarding the pros and cons of developing nuclear weapons and accommodating to international non-proliferation norms. This consensus among elites and specialists stands in marked contrast with the intense debates in Taiwan over whether or not to complete a long delayed and almost finished fourth nuclear power plant and the overall future of nuclear power in Taiwan. The scope of the latter debate goes well beyond policy elites and special interests. It involves mass demonstrations, widespread media coverage and extensive polling of public opinion.

The latter debate is highly politicized as the main political parties, the KMT and the DPP, have long been at odds over the fourth power nuclear power plant at Lungmen (the Lungmen plant) and the future of nuclear power in Taiwan. The two parties continue to maneuver for advantage or to avoid negative repercussions on nuclear power and related issues, thereby adding to the salience of the highly charged nuclear power discussions and debates prevalent in Taiwan today.

The Taiwan debate on the Lungmen plant and the future of nuclear power in Taiwan has a long history. Over time, the debate has waxed and waned for various reasons. The level of concern today is high but arguably it is not as intense as the debates over the Lungmen plant after the DPP finally won control of the presidency in 2000 and considered ending the plant construction in line with its longstanding platform favoring an end to nuclear power in Taiwan.

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#### **TEXT BOX The Controversy over the Lungmen Nuclear Power Plant, 2000**<sup>2</sup>

The Democratic Progressive Party long aligned with Taiwan's environmental and anti-nuclear power activists in its struggle for power against the dominant KMT. The 2000 presidential election saw DPP candidate Chen Shui-bian win less than 40 percent of the popular vote but nonetheless he won the presidency against a divided opposition of a KMT candidate and a former KMT stalwart who had broken from the party. Chen faced a legislature still dominated by the KMT and allied politicians. And his government apparatus, under KMT dominance for decades, was slow to follow his lead.<sup>3</sup>

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<sup>2</sup> Unless otherwise noted, the information in this section is taken from Shu-Hsiang Hsu, "Advocacy coalitions and policy change on nuclear power utilization in Taiwan," *The Social Science Journal* 42 (2005) 215-229

<sup>3</sup> Steven Goldstein and Julian Chang, *Presidential Politics in Taiwan: The Administration of Chen Shui-bian* Norwalk, CT: Eastbridge, 2008.

Controversy over the Lungmen nuclear power plant dominated the new president's first year in office. Environmental and anti-nuclear advocates within and allied with the DPP pushed President Chen to live up to his campaign promise to terminate the Lungmen nuclear plant that was undergoing construction. Following Chen taking office in May 2000, a government committee reviewed the plans for the plant in June but could not reach a consensus on the project's fate, though a majority favored ending the project. Chen's prime minister, a former general and member of the KMT, favored building the nuclear power plant and indicated that he would resign if the project was cancelled. President Chen gave indications that he would support cancelling the project and a new economics minister in September recommended suspending the project; the prime minister resigned and was replaced by a prime minister who supported ending the Lungmen plant.

The KMT-led legislature argued that the plant could not be terminated without its approval. On October 27, 2000, Chen tried to find common ground in a meeting with the KMT leader; an hour after the meeting, Chen's prime minister announced that he would end the plant on his own authority. The seemingly abrupt and likely poorly coordinated move embarrassed the KMT leader and steeled the KMT opposition in the legislature. The KMT-led opposition launched an unprecedented effort to unseat Chen through a presidential recall. Public and business confidence in Chen and his rule declined. Chen was forced to apologize in November. And he asked the Taiwan's high court, The Council of Grand Justices, to determine whether the Taiwan executive on its own authority could end the nuclear power plant project. The judges ruled in January 2001 that the decision required approval by the legislature. After negotiations between the prime minister and the legislature's leader in February, a compromise was reached to resume construction of the power plant.

The tortuous events over ten months of the Chen government's first year in office showed poor coordination and serious divisions among the DPP and an enormous gap between the DPP and the KMT. The events raised serious and arguably lasting questions as to whether Chen and his associates had sufficient skills to manage contentious issues in Taiwan politics. Although the DPP gained some seats in the legislative elections in December 2001, President Chen still did not have sufficient support to push cancellation of the Lungmen nuclear power plant project through the legislature. In particular, the DPP's main allied party in the legislature was directed by former President Lee Teng-hui who was known to oppose the decision to cancel the Lungmen nuclear power plant.

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Anti-nuclear sentiment in Taiwan revived strongly after the Fukushima disaster in Japan in March 2011. The DPP presidential candidate in the January 2012 election, Tsai Ing-wen, staked out a position against the government of President Ma Ying-jeou's policy to complete construction and begin operation of the Lungmen plant. The candidate pledged that Taiwan under DPP rule would end nuclear power by 2025. President Ma favored a more gradual path involving terminating the three existing nuclear power plants once their normal length of operation concludes, seeking an end of nuclear power on the island

in the much later future, presumably once the Lungmen plant reached the end of its operation. Tsai's position failed to generate support sufficient to close the gap between her and President Ma as the incumbent was reelected by a wide margin.<sup>4</sup>

Persistent controversy and repeated media reports of safety and operational shortcomings at the Lungmen plant and at already operating Taiwan nuclear power plants combined with an initiative in February 2013 by the newly installed KMT Premier Jiang Yi-huah to propose a national referendum to decide the fate of the Lungmen plant. The result was a large increase in debate, including a March 9, 2013 rally calling for the halt of the Lungmen plant that drew 200,000 protestors.<sup>5</sup> By June, Chinese Nationalist Party (KMT) legislators, backed by the government, proposed that a referendum with the question "Do you agree that the construction of the Fourth Nuclear Power Plant should be halted and that it not become operational?" If the referendum is approved by the Legislature it will be voted on by the electorate. It was anticipated by some observers that the legislature would have passed the legislation during the legislative session, which ended in June 2013, thereby forecasting that the referendum would be held within six months, by the end of 2013.<sup>6</sup> In the event, the referendum remained to be approved by the legislature.

Despite the strong attention to the Lungmen plant and related issues by media, politicians and various activists, it was commonly predicted in Taiwan that the referendum would fail due to insufficient votes. Taiwan's Referendum Act requires a voter turnout of at least 50 percent of *eligible* voters. That means about 9.15 million votes are needed for a referendum to be considered valid, and of those who voted, at least 50 percent must vote "yes" to the question for it to be passed. Getting 50 percent of eligible Taiwan voters to vote on a referendum issue has failed in the recent past. Polls in Taiwan show that a majority supports deciding the fate of the Lungmen plant by means of a national referendum. Nevertheless, interviews with Taiwan anti-nuclear activists in May 2013 pointed to the Taiwan public's "fatigue" and disenchantment with what the public reportedly sees as politicians manipulating debates on sensitive issues like nuclear power for the sake of the narrow political interests of their parties. The dissatisfaction adds to reluctance to vote on what is widely seen as a "politicized" referendum, even though popular concern with safety and other issues at the Lungmen and other plants remains high.<sup>7</sup>

### **Context: Elements influencing the debate over nuclear power**

Taiwan's energy sources rely heavily on imports. In 2012, Taiwan Power Company (Taipower--the nation's provider of electric power) used coal for over 40 percent of Taiwan's electric power, with liquefied natural gas providing over 30 percent, nuclear power over 18 percent, hydropower 4 percent, oil 2.5 percent and wind and solar .7 percent.<sup>8</sup>

<sup>4</sup> Andrew Jacobs, "Vote Holds Fate of Nuclear Power in Taiwan," *New York Times* www.nytimes.com

<sup>5</sup> "The Nuclear Power debate heats up," *Taiwan Communiqué* (April/May 2013) p.10-11.

<sup>6</sup> Lee I-chia, "Bicyclists start referendum drive," *Taipei Times*, June 6, 2013 p.3.

<sup>7</sup> Lee, "Bicyclists start referendum drive"; interviews, Taipei, May 20-23, 2013

<sup>8</sup> *Status of Nuclear Power in Taiwan* Taiwan Government Fact Sheet, May 2013.

The output of Taiwan's three existing nuclear power plants, each with two nuclear power reactors, declined by 4 percent in 2012 due mainly to an extended shutdown during a refueling outage to obtain restart approval after replacement of seven damaged anchor bolts at one of the nuclear reactors. The discovery of the damaged bolts was among a litany of safety concerns highlighted by the media and activists warning that Taiwan's existing nuclear plants and the Lungmen plant are unsafe.<sup>9</sup>

Reviews of safety and other considerations in Taiwan's existing nuclear plants and the almost completed Lungmen plant were carried out by the Taiwan government in the wake of the Fukushima disaster and the enhanced public debate over nuclear power. The government reviews found a number of safety concerns, many of which were highlighted graphically by activists in the media and in videos over the internet to demonstrate what were seen as serious dangers posed to Taiwan by nuclear power plants and related issues, notably the storage of nuclear waste. The government's Atomic Energy Council affirmed that these shortcomings were being addressed and they arranged to have international teams to review a so-called "stress test" of Taiwan's three existing nuclear power plants and the overall safety of Taiwan's nuclear power system.<sup>10</sup>

Interviews in May 2013 with a variety of specialists and activists in Taiwan, including opponents of the KMT government and supporters of the KMT government, showed that the credibility of Taipower in dealing with nuclear matters and the credibility of the Atomic Energy Council, the government body that oversees Taipower's operation of nuclear matters, are not strong. As a result, despite repeated efforts of the company and its oversight body to show the safety of Taiwan's existing and planned nuclear power, basic issues involving the location of the plants, their construction, their operations and their arrangements for storage of nuclear waste remain subject to wide media and public debate with no resolution in sight.<sup>11</sup>

A senior government official with responsibility for nuclear energy and economic development echoed others in explaining that the Fukushima disaster impacted opinion in Taiwan against nuclear power for several reasons. For one, the Fukushima plant used U.S. technology similar to that used in Taiwan plants. Seeing such technology, viewed as high quality by Taiwan in the past, fail in Fukushima raised serious questions in Taiwan

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<sup>9</sup> *Status of Nuclear Power in Taiwan* p. 1. Interviews with opponents of Lungmen plant, Taipei May 22-23, 2013; these were among interviews that were conducted in Taipei May 20-24, 2013 with 24 officials, specialists and advocates involved in Taiwan nuclear debates. Included were officials from the Atomic Energy Council and government economic and environmental officers and officers from the ministry of foreign affairs. The author thanks the officials from the Taiwan Economic and Cultural Representative Office in Washington and the Ministry of Foreign Affairs in Taipei for their help in arranging these official meetings and meetings with scholars, notably including some prominent former officials from the Chen Shui-bian government. The author thanks Dr. Alvin Yao of the Prospect Foundation for his assistance in arranging meetings with members of the Foundation, opposition politicians and activists opposed to the Lungmen power plan.

<sup>10</sup> *Status of Nuclear Power in Taiwan* p. 1; interviews with opponents of Lungmen plant, Taipei May 22-23, 2013.

<sup>11</sup> "The Nuclear Power Debate heats up": Alan Romberg "Striving for New Equilibria," *China Leadership Monitor* No. 41 June 6, 2013, p. 14-17; interviews, Taipei, May 20-23, 2013

about the safety of the Taiwan plants. Moreover, unlike earlier nuclear plants in Taiwan, the Lungmen plant was not developed and built under the guidance of a U.S. company. A lack of effective coordination among the various contracting agencies that Taipower has hired has resulted in numerous issues regarding safety and the structural integrity of the plant. Also, Taiwan opinion is said to regard Japanese industry as more cautious and more carefully regulated than that in Taiwan. The failure of Japanese oversight in Fukushima caused many in Taiwan to have more serious doubts about real or suspected shortcomings in Taiwan's operation and regulation of nuclear power plants.<sup>12</sup>

Against this background, basic questions have been raised as to whether or not the Taiwan plants are located in zones vulnerable to Tsunamis, earthquakes or other seismic dangers; whether or not the large populations near the nuclear power plants would have the ability to evacuate effectively in the event of nuclear disaster at one of the plants; and whether or not the seemingly ad hoc decisions to store the high grade nuclear waste from the nuclear power plants temporarily at the seemingly crowded power plant sites because of the absence of a permanent storage site will lead to leakage from rusting storage barrels or other dangers to the Taiwan environment.<sup>13</sup>

Nevertheless, the support for the anti-nuclear movement remained limited in 2012, underlined by the failure of the DPP challenger in the January 2012 presidential election. Among the reasons cited by those interviewed in May 2013 for the revival of the nuclear energy debate was Taipower's request in 2013 for additional funds from a skeptical Taiwan legislature to finish the Lungmen nuclear power plant, and Premier Jiang Yi-huah's surprise call for a national referendum on the future of the Lungmen plant.<sup>14</sup>

Other elements influencing the current debate in Taiwan include the following, according to officials, specialists and activists interviewed in Taiwan in May 2013.<sup>15</sup>

- Without the Lungmen plant and other nuclear power plants, Taiwan's electricity will cost more. Nuclear power is more than four times less expensive than LNG generated power and more than two times less expensive than coal generated power.<sup>16</sup> Moreover, Taiwan people resist increased costs for electric power.<sup>17</sup> Efforts by the Ma government in 2012 to pass to consumers more of the actual cost of producing electricity proved to be widely unpopular. Thus, rather than resort to what one observer called "political suicide" in passing big electricity cost increases on to consumers, continuing plans for nuclear power may appear more acceptable, to at least some leaders. On the other hand, anti-nuclear activists assert that they and Taiwan people will be willing to "turn up the air conditioning thermostat" and take other steps to deal with more expensive electricity, provided Taiwan benefits from more rapid movement away from nuclear power. The low

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<sup>12</sup> Interview with Taiwan government economic official, Taipei, May 21, 2013.

<sup>13</sup> Interview with DPP legislator and staff aides, Taipei, May 23, 2013

<sup>14</sup> Interviews, Taipei, May 20-23, 2013

<sup>15</sup> Ibid

<sup>16</sup> *Status of Nuclear Power in Taiwan* p. 1

<sup>17</sup> Romberg, p. 15.

- regard that some observers in Taiwan have of Taipower leads them to argue that the utility should be reformed in ways that would result, in the view of these critics, in considerable cost savings for Taiwan electricity consumers
- Nuclear power does not produce the green house gases associated with coal and to a lesser degree LNG produced energy. Thus, Ma government environmental officials have maintained that Taiwan faces more danger from climate change caused by production of green house gases than it does from plans for continued use of nuclear power plants.<sup>18</sup> On the other hand, anti-nuclear advocates argue that reducing overall electricity consumption by curbing air conditioning and other means is a better way to reach emission goals than continued use of what they view as dangers associated with nuclear power plants.<sup>19</sup>
  - Advocates of continued use of nuclear power argue that such power generation makes Taiwan more secure in the face of blockade or other curtailment of international supplies. Taiwan maintains only a 10 day supply of LNG and a 60 day supply of coal for its power reactors; it has the nuclear materials it needs to keep its reactors going for one year.<sup>20</sup> Some advocates for nuclear power go further in regard to energy security and self reliance, arguing for Taiwan to arrange reprocessing of its high grade nuclear waste for reuse in Taiwan reactors.<sup>21</sup> The Taiwan government is inclined to forswear reprocessing on Taiwan soil, though such reprocessing possibly could be done in the United States or some other location. Predictably, those opposed to continued use of nuclear power in Taiwan see the costs of these options outweighing perceived benefits.

.Post martial law Taiwan has featured growing opposition to nuclear power and nuclear waste in Taiwan which has focused heavily on safety concerns involving having potentially very dangerous nuclear power plants and nuclear waste sites in small, crowded and seismically active Taiwan. The public debate has not focused on Taiwan's development of nuclear weapons or its adherence to international nuclear proliferation regimes and its reported willingness to forswear reprocessing nuclear fuel in Taiwan. However, the debate over nuclear energy has been so widespread and politically salient that it has compelled previously pro-nuclear energy advocates and politicians to reconsider their positions. One of the two KMT politicians most likely to be selected as the KMT candidate in the 2016 presidential election, Taipei Mayor Hau Ling-bin, has changed his position and gone against his party's leaders on the proposed referendum on the Lungmen plant. He has argued that the referendum should not be held and that construction of the plant should stop now.<sup>22</sup>

The result is that both the DPP, long associated with the anti-nuclear power movement, and the KMT have increasingly moved in directions that will diminish the nuclear footprint in Taiwan. Both parties are now committed to goals of nuclear free Taiwan. Under these circumstances, considering the introduction of nuclear weapons in Taiwan or

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<sup>18</sup> Romberg, p. 16; interview with Taiwan government environmental officials, Taipei, May 21, 2013

<sup>19</sup> Interviews, Taipei, May 22-23, 2013

<sup>20</sup> Interview with Taiwan government economic official, Taipei, May 21, 2013

<sup>21</sup> Briefing by Taiwan academic expert, Taipei, May 20, 2013

<sup>22</sup> Romberg, p. 15.

nuclear reprocessing there appears increasingly remote. The anti-nuclear sentiment also would appear to impel Taiwan leaders to advance their recent globalist outlook in becoming one of the world leaders in fostering a strong global nuclear nonproliferation regime.

Taiwan's nuclear energy debates have become widespread among a variety of interest groups and constituencies in Taiwan; the energy debates have become politicized, part of the highly partisan struggle for political leadership in Taiwan between the KMT and the DPP. Each political party continues to endeavor to bring constituencies and interest groups into its camp.

The strong opponents of the Lungmen plant include DPP nationalists whose concern relates to the purity and integrity of their homeland, Taiwan, which they see challenged by the danger of potentially massive contamination from nuclear reactors and nuclear waste. Globalists among the opponents of the plant feature advocates who join hands with skeptics of nuclear power throughout the world. They join together with advocates in Germany, Japan and other very developed countries who are part of a recent world movement against nuclear power. Realists among the opponents endeavor to reconcile doing away with nuclear power with Taiwan's commitment to reduce its international carbon footprint and help slow global warming and climate change; and they address the purported rise in electricity costs that is forecast with the end of nuclear power. In both cases, they tend to stress greater energy conservation along with greater emphasis on renewal energy as an appropriate path.

By contrast, some nationalists among the supporters of the Lungmen plant argue that nuclear energy provides much more energy security for Taiwan than imported coal or LNG. Some favor reprocessing spent nuclear fuel in Taiwan as way to enhance Taiwan's energy security. Globalists among the supporters of the plant include business people and economists who argue that Taiwan needs dependable, affordable and sufficient energy if it is to compete effectively in the global economy. In their view, conforming to the dictates of international economic globalization makes nuclear energy a cost-effective and necessary component in Taiwan's energy supply mix. Other globalists see a trade off in that using nuclear energy avoids increasing Taiwan's carbon footprint and allows Taiwan to meet commitments to curb green houses gases and resulting climate change. Realists among the supporters of the plant include those who take account of the loss of Taiwan's taxpayers and Taiwan's economy if the almost completed plant is abandoned. These realists are not convinced with the opponents' arguments that the loss of inexpensive electricity from nuclear power could be offset by conservation or renewal energy in Taiwan.

### **Outlook and Implications**

Taiwan's debates over nuclear energy will continue, even if a proposed referendum on halting the fourth nuclear power plant at Lungmen is held and fails, as expected, because of insufficient voter participation. The highly politicized debates almost certainly will be used by DPP candidates to mobilize support in island wide elections in December 2014.



The KMT government may be placed on the defensive. As noted above, some KMT officer holders have shown reluctance recently to support the completion of the fourth nuclear power plant. Presumably KMT leaders will portray the party as also moving Taiwan to a nuclear free future in a less radical and disruptive manner than would be required by the DPP's commitment to a 2025 deadline.

One implication of the recent broad nuclear energy debates is to add to powerful circumstances that push Taiwan toward a nuclear free future. Such circumstances add to reasons why Taiwan decision makers would eschew nuclear weapons development and strengthen Taiwan's growing interest in a position as a world leader in fostering and supporting rigorous global nuclear non-proliferation. Both these Taiwan policy trends are in line with American interests and policies

Another set of implications of the active Taiwan policy debate are not so positive for Americans, especially those who are concerned with the trajectories in Taiwan policy and practice toward China and related issues. Those U.S. observers concerned with recent trends in Taiwan include prominent backers of Taipei's recent approach toward China such as former AIT Director Richard Bush. Bush reiterates in his latest book earlier arguments he made regarding the growing need for political, economic, societal and defense "self-strengthening" in Taiwan. In his recent book, Bush highlights that Taiwan needs greater political rigor and unity in order to prepare to deal effectively with China in talks on security and political issues, to promote an effective economic strategy, and to follow through on needed defense strengthening.<sup>23</sup> The course of the Taiwan debate over the fourth nuclear power plan over the past year or so obviously distracts Taiwan decision makers from such task; it adds to the intense political competition and resulting gridlock that undermines effective self-strengthening on the island to deal with the challenges posed by rising China.

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<sup>23</sup> Richard Bush, *Unchartered Strait* Washington DC: Brookings Institution, 2013, p. 158-195.

