

Winter 2017

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### Recommended Citation

Bridget Cho, *The Japanese Business Federation's Influence On Energy Policy Reform: Fukushima Daiichi Nuclear Disaster*, 13 *Hastings Bus. L.J.* 257 (2017).

Available at: [https://repository.uchastings.edu/hastings\\_business\\_law\\_journal/vol13/iss2/4](https://repository.uchastings.edu/hastings_business_law_journal/vol13/iss2/4)

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# The Japanese Business Federation's Influence on Energy Policy Reform: Fukushima Daiichi Nuclear Disaster

By Bridget Cho\*

This note focuses on the series of events that were pertinent to the Fukushima Daiichi Nuclear Disaster (“Fukushima”) and recommends stringent nuclear power plant license procedures, stronger reform in accident mitigation policies, and heightened transparency between the government and its people. Japan embraces the peaceful use of nuclear technology to provide a substantial portion of its electricity despite being the only country to have suffered the devastating effects of nuclear weapons in wartime. The country has faced many difficulties in its energy policy following the Great East Japan Earthquake on March 11, 2011, triggering the Fukushima disaster. Japan’s government has implemented new safety measures for nuclear power plants due to the international and domestic outcry for safety.

Keidanren, also known as the Japan Business Federation, is an economic organization comprised of 1,239 representative Japanese companies, 109 nationwide industrial associations, and 47 regional economic organizations.<sup>1</sup> As an economic organization, Keidanren supports corporate activities, including nuclear energy and technology. Keidanren plays a significant role in the continuous use of nuclear energy and technology because it directly encourages the Japanese government to promote legislation and to create the conditions required for its continued utilization.<sup>2</sup>

Taking into account the lessons learned from Fukushima, Keidanren and the Japanese government have been working to reduce carbon-dioxide emissions through bottom-up initiatives such as emissions trading schemes and information

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1. *About Keidanren*, KEIDANREN, (Oct. 25, 2016), <http://www.keidanren.or.jp/en/profile/pro001.html>.

2. *A Proposal for Near-Term Energy Policy*, KEIDANREN, (Oct. 25, 2016). <https://www.keidanren.or.jp/en/policy/2014/081.html#s2>.

sharing on energy-saving and low-carbon technologies among companies. The Japanese government created an independent agency, the Nuclear Regulation Authority (“NRA”), to ensure the separation from nuclear regulation and nuclear development against the backdrop of a damaged public trust.<sup>3</sup> The NRA enhanced strict nuclear regulations in three areas<sup>4</sup> and established a higher level of transparency between the government and its people. These initiatives have spurred contentious political battles for both nuclear development and nuclear regulation.

This Article will discuss Keidanren’s initiatives on energy and climate change policy, with reference to the Japanese Legal System and regulatory agencies. This Article will also discuss how the evolving structure of the Japanese economy has led to a change in the pattern of the business sector’s engagement with energy policy-making and the specific roles of energy-intensive users after the Fukushima Daiichi Nuclear Disaster.

## I. BACKGROUND

### *a. Keidanren and Its Mission*

As an economic organization, Keidanren supports corporate activities, which contribute to the self-sustaining development of the Japanese economy and the improvement in the quality of life for the Japanese people.<sup>5</sup> Keidanren is actively involved in the Japanese government’s policy agenda and keeps close contacts with a wide range of stakeholders including political leaders, administrators, and labor unions.<sup>6</sup> Keidanren also strives for the resolution of international issues and the development of closer economic relations with various countries through policy dialogue with the government and economic associations of each country.<sup>7</sup>

In the past, and particularly after Fukushima, the people criticized the Japanese government for its lack of division between nuclear regulation and nuclear development. For example, Keidanren submits formal recommendations or proposals to relevant ministries or agencies to identify problems and suggest solutions. This includes, among many others, a formal proposal regarding Keidanren’s stance for tax reform in 2014 for energy and business industries.<sup>8</sup> The formal recommendations are

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3. Nuclear Regulation Authority, Japan, NUCLEAR REGULATION AUTHORITY, 1, 2 (Oct. 28, 2016) [http://www.nsr.go.jp/english/e\\_nra/nsr\\_leaflet\\_English.pdf](http://www.nsr.go.jp/english/e_nra/nsr_leaflet_English.pdf).

4. *Id.* at 4.

5. *About Keidanren*, KEIDANREN, (Oct. 25, 2016), <http://www.keidanren.or.jp/en/profile/pro001.html>.

6. *Id.*

7. *Id.*

8. *Keidanren’s Proposal Concerning FY 2014 Tax Reform*, KEIDANREN, (Oct. 25, 2016), <https://www.keidanren.or.jp/en/policy/2013/077.html> and *A Proposal for Near-Term Energy Policy*, *supra* note 1.

incorporated in national meetings, whereby the recommendations are implemented into the regulatory transcript. Given Keidanren's importance as a political pressure group through direct negotiations with relevant ministries and cooperation with politicians, it is likely that Keidanren continues to influence energy policy in Japan.

Keidanren also initiated the move toward improving administrative transparency, secured new safety criteria founded on scientific grounds, and endorsed the government's regulatory plans of the "new regulatory body to be established."<sup>9</sup> Keidanren wanted to support the growth of nuclear energy, but without regulations, the government and its people seemed skeptical particularly after the Fukushima Disaster. Consequently, the Japanese government developed the NRA, an agency separate from the Japanese Cabinet and the Ministry of Economy, Trade, and Industry ("METI").<sup>10</sup> This is one of many instances where Keidanren's requests concerning the improvement in standards and certification systems are incorporated into Japan's nuclear regulating guidelines.

Before Fukushima, allegations that the then governing body, the Nuclear and Industrial Safety Agency ("NISA"), repeatedly tried to influence public symposiums on the use of nuclear energy proliferated public media.<sup>11</sup> These allegations came after business leaders of the electric power company, Chubu, confessed to publicly delivering pre-arranged answers in favor of nuclear power during a news conference.<sup>12</sup> Consequently, the public became skeptical of the authority overseeing NISA, questioning whether other major energy corporations might be involved in similarly dubious conduct.<sup>13</sup> Encouraged by both the public and Keidanren, the Japanese Cabinet formed the NRA to gain the public's trust and to create rigorous and reliable regulations of nuclear activities,<sup>14</sup> to ensure transparency, and to appropriate information disclosure on regulations.<sup>15</sup>

Even after establishing the NRA, the Japanese people criticized NISA for its lack of independence and its too-close-for-comfort relationship between the regulators and the industry.<sup>16</sup> NISA was also criticized for

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9. *Keidanren's Views on the "Option for Energy and the Environment,"* KEIDANREN, (Oct. 25, 2016), <https://www.keidanren.or.jp/en/policy/2012/057.html>.

10. Nuclear Regulation Authority, Japan *supra* note 2, at 3 (see chart).

11. Nuclear Safety Agency Under Fire Over Fake Question, JAPAN TODAY (July 31, 2011), <http://www.japantoday.com/category/national/view/nuclear-safety-agency-under-fire-over-fake-questions-at-symposiums>.

12. *Id.*

13. *Id.*

14. *NRA's Core Values and Principles*, Nuclear Regulation Authority, (Oct. 25, 2016), [https://www.nsr.go.jp/english/e\\_nra/idea.html](https://www.nsr.go.jp/english/e_nra/idea.html).

15. *NRA's Core Values and Principles*, *supra* note 14.

16. Emily Benz, *Lessons From Fukushima: Strengthening The International Regulation of Nuclear Energy*, 37 WM. & MARY ENVTL. L & POL'Y REV. 845, 846-48 (2013).

having a conflict of interest because it was part of METI, the branch responsible for promoting nuclear power. In response, the Japanese Cabinet decided to separate the NISA from the METI because the ministry was too involved with promoting nuclear energy.<sup>17</sup> To ensure conformity and neutrality, the new task force functions directly under the Ministry of Environment.<sup>18</sup>

#### A. WALK THROUGH TIME: JAPAN'S ENERGY POLICY HISTORY

Japan's shortage of minerals and energy influenced its energy policy development in the past century. Over 90% of Japan's energy needs were satisfied through import. Specifically, during the critical reconstruction of the Japanese economy post World War II in the mid-20th century, the country relied heavily on fossil fuel imports from the Middle East.<sup>19</sup> To minimize dependency on foreign resources and to establish a competitive economic market, Japan launched its first nuclear program in 1954,<sup>20</sup> followed by the inauguration of the Atomic Energy Commission in 1956 to promote nuclear power development and utilization.<sup>21</sup> The first reactor to produce electricity in Japan was a prototype boiling water reactor: the Japan Power Demonstration Reactor, which ran from 1963 to 1976 and provided a large amount of information for later commercial reactors.<sup>22</sup> Consequently, the re-evaluation of domestic energy policy resulted in diversification and in particular, a major nuclear construction program.

Similarly, changes in the United Kingdom ("UK") and its economy over the past century have affected the level of UK businesses' participation in defining energy policy. For example, in as early as the late 18th century, British companies focused on industrial luxuries including: tea, coffee, tobacco, sugar,<sup>23</sup> whereas now, those same companies have shifted their enterprise and services towards banking, retail, and other service departments of the economy. During the mid-20th century, the UK saw the birth of modern environmentalism and the development of a public environmental consciousness, which consequently resulted in a

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17. Nuclear Regulation Authority, Japan *supra* note 2, at 3 (see chart).

18. *Id.*

19. *Nuclear Power in Japan*, "Japan's energy situation and international dependence", WORLD NUCLEAR ASSOCIATION, (Oct. 25, 2016), <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/japan-nuclear-power.aspx>.

20. *Nuclear Power in Japan*, "Development of nuclear program & policy 1950 to 2000", WORLD NUCLEAR ASSOCIATION, (Oct. 25, 2016), <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/japan-nuclear-power.aspx>.

21. *Id.*

22. *Id.*

23. Industrial Revolution, ENCYCLOPEDIA, [http://www.encyclopedia.com/topic/Industrial\\_Revolution.aspx](http://www.encyclopedia.com/topic/Industrial_Revolution.aspx).

transformative and comprehensive body of environmental laws.<sup>24</sup> On the other hand, Japan prioritized reducing the country's dependence on oil imports, which meant the island country still relied on domestic corporations. This reliance began a long partnership between the government and Keidanren in developing energy policy.

#### CRITICAL EVENTS PRECEDING THE FUKUSHIMA DAIICHI NUCLEAR DISASTER

Japan's energy policies, mainly the Act on Compensation for Nuclear Damage<sup>25</sup> ("Act"), amended in 2009, and Japan's Law on Contract for Liability Insurance for Nuclear Damage, were tested on March 11, 2011, when a powerful earthquake and devastating tsunami struck Northeastern Japan including the Miyagi, Fukushima, Iwate, Yamagata, Ibaraki, Chiba, Akita, and Aomori prefectures. The Act states the nuclear operator is held liable regardless of fault and describes the operator's strict liability, which includes damage not covered by the insurance contract and the indemnity fee to the government.<sup>26</sup>

The Act was amended in accordance with existing energy policy principles and obliged the Tokyo Electric Power Company, Inc. ("TEPCO"), a member of Keidanren, to provide private insurance at an estimated 120 billion Japanese Yen ("JPY"), per site, in the event of nuclear accidents.<sup>27</sup> TEPCO hosted six boiling water reactors at Fukushima Daiichi, where three were shut down for maintenance.<sup>28</sup> The maintenance of the reactors will be discussed later in this note. Under the Act, TEPCO was strictly and exclusively liable for nuclear damage defined as:

[N]uclear damage means any damage caused by the effects of the fission process of nuclear fuel, or of the radiation from nuclear fuel etc., or of the toxic nature of such materials, which means effects that give rise to toxicity or its secondary effects on the human body by ingesting or inhaling such materials.<sup>29</sup>

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24. Ben Christman, *A brief history of environmental law in the UK*, ACADEMIA, (Oct. 25, 2016), [http://www.academia.edu/6679685/A\\_Brief\\_History\\_of\\_Environmental\\_Law\\_in\\_the\\_UK](http://www.academia.edu/6679685/A_Brief_History_of_Environmental_Law_in_the_UK).

25. *Key Provisions of Japanese Legislation Covering Liability for Nuclear Damages*, Act No. 147 of 1961 as amended by Act No. 19 of 17 Apr. 2009, MARSH (Oct. 25, 2016), <http://marsh.com/DisasterRecovery/Content/articleType/ArticleView/articleId/3880/Key-Provisions-of-Japanese-Legislation-Covering-Liability-for-Nuclear-Damages.aspx>.

26. *Key Provisions of Japanese Legislation Covering Liability for Nuclear Damages*, Order for the Execution of the Act on Indemnity Agreements for Compensation of Nuclear Damage (Act No. 45 of 1962, as amended 17 Apr. 2009), MARSH (Oct. 25, 2016), <http://marsh.com/DisasterRecovery/Content/articleType/ArticleView/articleId/3880/Key-Provisions-of-Japanese-Legislation-Covering-Liability-for-Nuclear-Damages.aspx>.

27. Ximena Vasquez, *TEPCO Fukushima Daiichi Accident Nuclear Liability Related Issues*, OECD Nuclear Energy Agency 9-11, 9 (2011).

28. Benz *supra* note 16, at 846.

29. Act No. 147 of 1961 as amended by Act No. 19 of 17 Apr. 2009 *supra* note 25.

The Japanese courts, however, did not stipulate to practical details and rules for applying compensation. In the process of amending the Act, the Japanese legislature and the agency in charge at the time, did not open the door to the public. Rather, the government agencies invited members of Keidanren, specifically representatives from the power sector<sup>30</sup> because the representatives were closely connected with public officials in charge of energy regulation. This is one of the many deficiencies in energy and nuclear policies that can be attributed in one way or another to Keidanren. Keidanren had a direct and crucial role in amending the Act and the operators' liability in the event of an accident. To cover the Japanese civilians who suffered directly and indirectly from Fukushima, the 120 billion JPY was not near enough.

A volume of private litigation against TEPCO ensued after Fukushima on March 11, 2011.<sup>31</sup> Japan's Act on Compensation for Nuclear Damages did not accurately calculate the financial resources needed for a large-scale disaster nor did the Act identify the victims who could seek compensation.<sup>32</sup> Section 16 of the Act on Compensation for Nuclear Damages even states that the Japanese government may assist in compensation claims if they exceed the operator's liability, subject to the Japanese Cabinet's approval.<sup>33</sup> Here, TEPCO was the power plant operator of Fukushima Daiichi and the Japanese Cabinet approved in the compensation claims, which led to controversy for TEPCO claimed it was a "natural disaster" and therefore had no liability.<sup>34</sup> TEPCO's liability indemnified the Japanese government through an indemnity contract between the government and TEPCO.<sup>35</sup> This led the public to believe that Keidanren had too much influence in politics, enough for the government to take over financial liability. Regardless of the Act on Compensation for Nuclear Damage, the aftermath of the disaster still remains an unresolved mess of criminal negligence claims and unpaid compensation to displaced victims unable to return to their homes.

The victims' main critique thus suggests that TEPCO's survival is due to the power of Keidanren, and that Keidanren is believed to have more control of the nuclear regulations than the Japanese government, causing large public distrust. This distrust is largely because of no transparency among the people, Keidanren, and the Japanese legislature. Without any information regarding energy policy and related regulation issues, the Japanese people remain highly skeptical of the government's work.

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30. Andrew DeWitt & Iida Tetsunari, *The Power Elite and Environmental- Energy Policy in Japan*, 9 THE ASIA PAC. J. 1, 12 <http://apjif.org/2011/9/4/Andrew-DeWit/3479/article.html>.

31. David McNeill, *The Fukushima Nuclear Crisis and the Fight for Compensation*, 10 THE ASIA PAC. J. 1, 1 (2012) (discussing 7,600 completed forms TEPCO received for compensation post-Fukushima and the systemic issues associated with compensation).

32. Eric A. Feldman, *Fukushima: Catastrophe, Compensation, and Justice in Japan*, 62 DEPAUL L. REV. 335, 341-42 (2013).

33. *Id.* at 343.

34. *Id.* at 342-43.

35. *Id.*

## b. Japan's Reformed Energy Policy

After Fukushima, TEPCO was seemingly stripped away of any responsibilities in its hopes of a potential exoneration due to the “exceptional” character of this disaster<sup>36</sup>. The Fukushima victims, left without adequate compensation, urged for stricter nuclear regulation including removal of financial liability caps to protect victims and urge Fukushima to take financial responsibility. Proponents for stricter liability policies contend that the Japanese Government, particularly the Dispute Reconciliation Committee appointed to resolve the Fukushima issue, did not sufficiently provide the requisite assistance for the victims’ recovery because the committee focused on claims to include only government-designated victims of the disaster<sup>37</sup> and accepted the government’s controversial recommendations that “livable” radiation levels may be up to 20 millisieverts per year<sup>38</sup> — revealing the shortcomings of this committee and ultimately the influence from Keidanren.

According to data collected shortly after Fukushima, nuclear energy accounted for almost 30% of the country’s total electricity production.<sup>39</sup> The Cabinet included plans to increase this to 41% by 2017 and 50% by 2030.<sup>40</sup> Preliminary energy consumption figures indicate that in 2014 Japan generated energy from coal, gas, oil, hydro, and relatively nothing from nuclear.<sup>41</sup> The country’s nuclear capacity was progressively shut down following the 2011 Fukushima accident. Thus, Japan focused most of its attention to renewables including: solar, wind, geothermal, and biomass and waste and overall consumption dropped from 2011 to the beginning of 2013 post Fukushima disaster and without the contribution of nuclear energy.

In April 2015, the Japanese legislature announced that it wanted base-load sources to return to providing 60% of the power by 2030, with about one-third of this being nuclear.<sup>42</sup> Though there is public uproar and international scrutiny to Japan’s use of nuclear energy, Keidanren suggest that nuclear energy is vital to the country’s economy and to recognize that economic growth depends on stable and affordable power.<sup>43</sup> For example, analysis by the Research Institute of Innovative Technology for the Earth estimates that energy costs will be reduced by 2.4 trillion JPY or 20 billion U.S. Dollars (“USD”) per year compared with the present 40%

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36. Vazquez *supra* note 27, at 10.

37. McNeill, *supra* note 31, at 2.

38. McNeill, *supra* note 31, at 2.

39. *Nuclear Power in Japan*, “Japan’s energy situation and international dependence,” *supra* note 19.

40. *Id.*

41. *Id.*

42. *Id.*

43. *Nuclear Power in Japan*, “Economic impact of shutdowns”, WORLD NUCLEAR ASSOCIATION, (Oct. 25, 2016), <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/japan-nuclear-power.aspx>.

base-load scenario (renewables being 30%).<sup>44</sup> Due to this new projection, many sources including BP Energy Outlook states that Japanese reactors are expected to restart over the next five years to reach 60% of their 2010 levels by 2020.<sup>45</sup>

Following the Fukushima Daiichi Nuclear Power Plant Disaster, it is clear that the Cabinet sought to greatly reduce the role of nuclear energy in Japan. However, Japan's high consumption rates have created a dilemma that the Japanese Government now faces. On the one hand, international and domestic criticism floods news channels in regards to Japan's hidden agendas among the ministries, government officials, and Keidanren. On the other hand, Japan must find energy sources with domestic corporations to stabilize and revive the country's economy.

## II. Analysis

### a. The Practice of *Amakudari* Contributed to the Disaster

These incidents led to the development of legislation aimed at preventing such calamity in the future. The country established investigative and research committees under the Disaster Countermeasures Basic Act and developed basic policies relating to preventative and rehabilitation programs.<sup>46</sup> Even with Japan's investigative and research committees put in place the inadequate regulatory oversight failed to prevent Fukushima's large-scale disaster.<sup>47</sup> For example, even before the Great East Japan Earthquake in 2011, a nuclear fuel production complex at Tokai released in the environment radioactive particles in what seemed to be an accident.<sup>48</sup> However, government watchdogs stated serious breaches of safety principles were violated.<sup>49</sup> Even with the preventative legislation in place, management executives, including the executives at TEPCO, systematically ignored regulatory procedures, failed to report engineering plan changes, and falsified installation status reports to regulators resulting in Fukushima.<sup>50</sup> TEPCO and other nuclear production complexes' conscious disregard towards implementing preventative measures and government oversight caused a public outcry because Fukushima's damages could have been significantly minimized.

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44. *Nuclear Power in Japan*, "Japan's energy situation and international dependence," *supra* note 19.

45. *Id.*

46. Disaster Countermeasure Basic Act, NATIONAL LAND AGENCY, (June 1997), <http://www.adrc.asia/documents/law/DisasterCountermeasuresBasicAct.pdf> (a provisional translation of the Disaster Countermeasure Basic Act).

47. *Id.*

48. *Tokaimura Criticality Accident 1999*, WORLD NUCLEAR ASSOCIATION, <http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/tokaimura-criticality-accident.aspx> (discussing how the accident was deemed human error and serious breaches of safety principles).

49. Kazuaki Nagata, *Time to Give Nuke Watchdog Teeth*, JAPAN TIMES (June 21, 2011), <http://www.japantimes.co.jp/news/2011/06/21/reference/time-to-give-nuke-watchdog-teeth/>.

50. James Acton & Mark Hibbs, CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE, *Why Fukushima Was Preventable*, 1, 24 <http://carnegieendowment.org/files/fukushima.pdf> (Mar. 2012).

Following the Fukushima accident, there has been more extensive domestic and international criticism of the Japanese regulatory system. This criticism focuses on NISA's lack of independence from the government and Keidanren. Japan incorporated regulatory agencies in its Cabinet to prevent the practice of *amakudari*,<sup>51</sup> defined as "descent from heaven," an act where senior regulators are appointed as senior executives in major power plants such as Fukushima Daiichi. Some may argue that establishing formal independence between Japan's regulatory body and major utilities may not result in stronger nuclear oversight unless Japanese regulators become more assertive. Regulatory deficiencies in Japan are ultimately rooted in the lack of accountability in Japan's nuclear culture and a lower tolerance for challenging authority.

In response to *amakudari*, the Japanese Cabinet implemented an independent agency called the Nuclear Safety and Security Agency (later known as NRC), for separation of nuclear regulation and promotion and to fulfill independence between the Japanese legislature and Keidanren.<sup>52</sup> However, some critics argue that a formal independence between Japan's regulatory body and major utilities may not result in stronger nuclear oversight if Japanese regulators will not become more assertive.<sup>53</sup> Regulatory deficiencies in Japan are ultimately rooted in the lack of accountability in Japan's nuclear culture and low tolerance for challenging authority.

Some nuclear industry executives and officials in the country blamed bureaucratic and professional stove piping.<sup>54</sup> For example, preventative measures set forth after Isewan Typhoon in 1959,<sup>55</sup> and the mitigation research set forth after Hanshin Earthquake in 1995<sup>56</sup> should have alerted industry executives and Japanese officials to reconsider and engage in preventative measures.<sup>57</sup> Even though Japanese legislation provides preventative measures, these measures are worthless if they are not implemented and mandated properly.

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51. INVESTOPEDIA, <http://www.investopedia.com/terms/a/amakudari.asp> (last visited Oct. 25, 2016).

52. Basic Policy on the Reform of an Organization in charge of Nuclear Safety Regulation, [http://www.cas.go.jp/genpatsujiko/pdf/kakugi\\_en\\_110815.pdf](http://www.cas.go.jp/genpatsujiko/pdf/kakugi_en_110815.pdf) (separating the nuclear safety regulation section of the Nuclear and Industry Safety Agency from the Ministry of Economy, Trade and Industry and integrating the function of the Nuclear Safety Commission).

53. Gail Marcus, *The Independence of NRA and its Regulatory Activities*, [http://nukepowertalk.blogspot.com/2013/05/japans-nuclear-regulation-authority\\_17.html](http://nukepowertalk.blogspot.com/2013/05/japans-nuclear-regulation-authority_17.html).

54. Stove piping is a metaphorical term in the context of intelligence information that is presented without proper conduct and an unwillingness of nuclear professionals to take advice from experts outside the nuclear field, which then creates a large barrier for implementing stricter standards.

55. Hikeaki Oda, *Towards Collaboration Between Typhoon Isewan (Vera) and Hurricane Katrina*, JAPAN WATER FORUM, at 25, [http://www.waterforum.jp/jpn/katrina/Typhoon\\_Isewan.pdf](http://www.waterforum.jp/jpn/katrina/Typhoon_Isewan.pdf) (last visited Oct. 25, 2016).

56. Japan: Legal Responses to the Great East Japan Earthquake of 2011, The Law Library of Congress, Global Legal Research Center, at 4, <http://www.loc.gov/law/help/japan-earthquake/Great-East-Japan-Earthquake.pdf>.

57. Japan: Legal Responses to the Great East Japan Earthquake of 2011, *supra* note 55, at 14.

As one government official states, “there are many tsunami experts in Japan,” but their findings have “not been taken seriously” by industry and governmental agencies responsible for making nuclear safety rules.<sup>58</sup> This is borne out by the Japanese commission’s investigation, which noted that no tsunami experts were involved in drafting the tsunami-related safety clauses in the 2006 guidelines on seismic safety.<sup>59</sup> In a similar vein, Japanese media reports asserted that TEPCO’s top management ignored warnings from Japanese experts that tsunamis were a serious safety threat.<sup>60</sup> Shareholders expressed their deep anger and sued TEPCO’s executive for 67.4 billion USD in compensation.<sup>61</sup> In the case of TEPCO, executives and officials were unwilling to exert efforts into disaster countermeasures, and two of the six nuclear power plants were unable to withstand the magnitude of the earthquake’s aftermath.<sup>62</sup> This was a cause of human error and oversight empowered by policies that were not applied properly.

Fukushima’s critics have largely focused on NISA’s dependence on the government.<sup>63</sup> To create transparency, the Japanese government created the independent NRA agency to prevent the practice of *amakudari*.<sup>64</sup> To establish a strong nuclear safety culture, it is not enough for nuclear plant operators to adopt a safety culture: The establishment, implementation, and maintenance of a robust nuclear safety culture are also dependent on a strong and independent regulator.<sup>65</sup> Thus, one can conclude that regulatory deficiencies in Japan were rooted in the lack of accountability in Japan’s nuclear culture and in low tolerance in Japanese society for challenging authority.

The era of commercial nuclear power generation began nearly a half-century ago, yet it seems that concerns that an external threat would disrupt the reactors developed gradually within those years. Japan’s entire industrial and engineering structures are highly informed of the danger of natural disasters, including seismic activity.<sup>66</sup> Ironically, Japan legislation has not supported these regulations because the nation has been slow to appreciate the potential danger of some other external events, especially tsunamis. Or, one could argue that Japan legislation has not supported these regulations because of Keidanren’s influence. The more regulation exercised by the Japanese legislation would mean more barriers to achieve optimal profits from nuclear energy sites.

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58. Acton & Hibbs, *supra* note 49, at 29.

59. *Id.* at 25.

60. *Id.* at 23–24.

61. Yoko Kubota, *Shareholders to sue Tepco executives for \$67 billion*, Reuters, <http://www.reuters.com/article/us-tepco-lawsuit-idUSTRE8240RY20120305> (Mar 5, 2012).

62. See Acton & Hibbs, *supra* note 49, at 23.

63. See Acton & Hibbs, *supra* note 49, at 23.

64. INVESTOPEDIA, <http://www.investopedia.com/terms/a/amakudari.asp> (last visited April 3, 2016).

65. *Lessons Learned From the Fukushima Nuclear Accident for Improving Safety of U.S. Nuclear Power Plants*, “Regulatory Independence” (Oct. 25, 2016) <https://www.ncbi.nlm.nih.gov/books/NBK253947/>.

66. *Fukushima Accident*, WORLD NUCLEAR ASSOCIATION, <http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/fukushima-accident.aspx>.

Currently, while some may argue that NISA had no authority to impose tsunami-related standards and plant design modification on nuclear power plant owners, including TEPCO executives, others claim NISA did.<sup>67</sup> NISA, as mentioned earlier in this note, remains an important factor because of the former influence of Keidanren. Whether or not NISA had the authority in fact may lead to huge liability issues and a re-structuring of the government branch in charge of regulating and monitoring nuclear power plants. One view to consider is the Independent Investigation Commission on the Fukushima Nuclear Accident's report, which does not limit its criticism to the Fukushima plant's operator, TEPCO.<sup>68</sup> Instead the Independent Investigation Commission criticizes the regulators' reliance on the industry for nuclear intelligence and research, and their failure in putting in place or enforcing adequate safety standards.<sup>69</sup> The Independent Investigation Commission report further "criticizes the bureaucratic culture within the main regulatory bodies that prevented the development of independent technological expertise and was resistant to change."<sup>70</sup> This particular report demonstrates the high criticism and dissatisfaction for the Japanese government's regulatory scheme and its potential for liability. The Nuclear Compensation Act underestimated the financial liability, and therefore, the Japanese government provided TEPCO with financial assistance to prevent insolvency.<sup>71</sup> This underestimation resulted in adjustments.

#### b. Focusing on Japan's Nuclear and Industrial Safety Agency's Role

TEPCO and NISA gave insufficient attention to historical evidence of large earthquakes and tsunamis. NISA, a regulatory agency influenced by the Keidanren, seemed to have made a series of mistakes that contributed to the magnitude of the Fukushima disaster. For example, the Disaster Countermeasure Basic Act, as promulgated by policies developed after the Isewan Typhoon<sup>72</sup> and Hanshin Earthquake,<sup>73</sup> requires the collection of data on pre-historical and historical earthquakes and tsunamis in the region of a nuclear power plant in order

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67. Acton & Hibbs *supra* note 49, at 23–24.

68. *Id.* at 23.

69. Acton & Hibbs *supra* note 49, at 23.

70. *Id.* at 24.

71. Joel Rheuben, *Government Liability for Regulatory Failure in the Fukushima Disaster: A Common Law Comparison*, 23 PAC. RIM L & POL'Y J, 113, 115 (2014).

72. See 1959 Super Typhoon Vera: 50-Year Retrospective, RMS SPECIAL REPORT; see also Hikeaki Oda, *Towards Collaboration Between Typhoon Isewan (Vera) and Hurricane Katrina*, JAPAN WATER FORUM, [http://www.waterforum.jp/jpn/katrina/Typhoon\\_Isewan.pdf](http://www.waterforum.jp/jpn/katrina/Typhoon_Isewan.pdf) (describing Isewan and its consequences).

73. The Great Hanshin Earthquake struck a stretch of the southern part of Hyogo Prefecture on January 17, 1995. It was rated at a magnitude of 7.3 on the Japan Meteorological Agency scale (6.9 on the United States Geological Survey scale). Six thousand four hundred people died and 240,956 houses collapsed. *Great Hanshin Earthquake Restoration*, KINKI REGIONAL DEVELOPMENT BUREAU, MINISTRY OF LAND, INFRASTRUCTURE AND TRANSPORT, [http://www.kkr.mlit.go.jp/en/topics\\_hanshin.html](http://www.kkr.mlit.go.jp/en/topics_hanshin.html) (last visited Oct. 10, 2016).

to protect the plant against rare extreme seismic events that may occur.<sup>74</sup> Historical data was used in assessing plant safety, but given the historical record of tsunamis in Japan, NISA should have been *much* more assertive in pushing TEPCO to re-structure, define and implement a safe design for tsunami prevention.<sup>75</sup> For instance, a compilation of tsunamis in and around Japan lists twelve events since the late 15th century of more than 10 meters, six of which had maximum height of over 20 meters.<sup>76</sup> TEPCO did not exercise discretion thoroughly and NISA did not mandate cautionary measures, ultimately leading to the damaged reactors and large consequences from Fukushima Daiichi.<sup>77</sup>

There also appears to have been deficiencies in TEPCO's tsunami modeling procedures, which resulted in an insufficient margin of safety at Fukushima Daiichi. In 2002, for example, the Japan Society of Civil Engineers developed a detailed methodology for determining the maximum height and impact of a tsunami on a nuclear power plant.<sup>78</sup> The Japan Society of Civil Engineers is an incorporated association entrusted with the mission to contribute to the advancement of scientific engineering.<sup>79</sup> This advancement to determine the maximum height and impact of a tsunami should have prompted TEPCO to revise the preventative design for tsunami prevention at Fukushima Daiichi and to include design measures to protect against tsunamis that could reach 5.7 meters.<sup>80</sup> However, TEPCO did not thoroughly execute safety plans even with the emergence of new information nor did NISA mandate TEPCO to modify its systems.

The updated reports released in 2002 for tsunamis would probably have warned NISA that TEPCO's tsunami defenses were inadequate.<sup>81</sup> Enhanced defenses might have mitigated the consequences of a larger tsunami than the plant was designed to withstand, thereby increasing the safety of the plant.<sup>82</sup> It should be noted, however, that TEPCO did not implement the Japan Society of Civil Engineers methodology in full because the methodology itself was flawed.<sup>83</sup> The methodology focuses exclusively on evaluating "other phenomena [that] are less important than that of the water level."<sup>84</sup> The failure to consider them at Fukushima may have given plant operators a false sense of the safety margins.

It also appears TEPCO did not have any suitable tools available to analyze the full range of effects of a tsunami because Japan's reports focused on seismic activity instead of tsunamis. Consequently, the reactors proved to be seismically-

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74. Acton & Hibbs, *supra* note 49, at 11.

75. Acton & Hibbs, *supra* note 49, at 12.

76. *Id.*

77. *Id.*

78. Acton & Hibbs, *supra* note 49, at 12.

79. *Id.*

80. *Id.*

81. *Id.* at 13.

82. Acton & Hibbs, *supra* note 49, at 13.

83. *Id.*

84. *Id.*

protected, but vulnerable to the tsunami.<sup>85</sup> But given the prevalence of tsunamis in Japan, NISA should have developed industry reports to protect from natural events and maintain international standards. For example, the United States Nuclear Regulatory Commission<sup>86</sup>, provided a full industry report from Severe Accident Management to Mitigation Features and Protection from Design Basis Natural Events. These types of reports would have been crucial to the maintenance of nuclear reactors in Japan and could have lessened the damage of Fukushima.

Since Keidanren and its members tightly controlled the energy market, no actions were made to prevent or alleviate Fukushima's damages. It also emerged in 2008 that TEPCO performed preliminary computer modeling that suggested the tsunami hazard to the plant had been severely underestimated, which should have prompted action.<sup>87</sup> TEPCO stated that, at the time, it was not convinced of the simulations' reliability and intended to pursue them further in collaboration with the Japan Society of Civil Engineers. This follow-up appears not to have taken place because executives informed NISA of its results three years later on March 7, 2011.<sup>88</sup>

A fundamental principle of nuclear safety is the existence of an effective and independent regulator to set safety rules and ensure compliance. This begins with government officials who should ensure that operators, including TEPCO, follow protocol. Japan's regulators, however, appear to have been inattentive to tsunamis given the information they had. Consequently, they did not mandate nuclear power plant redesign and modification.<sup>89</sup> The new simulations were based on actual historical earthquake information; NISA should have followed up with TEPCO and mandated thorough research as well as assessment of the new information.<sup>90</sup> Had the results been verified, TEPCO might have been able to take corrective action in time to avert the disaster of March 11, 2011.

### III. Proposal

#### a. Diversify Japan's Nuclear Regulation Authority Board for Transparency

Following the events of Fukushima, critics contend that the current international nuclear regulatory scheme is inadequate because it allows states, like Japan, to fail in their own regulatory duties. This section will discuss Japan's systemic weaknesses, and how they can prevent or mitigate the harm of natural

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85. *Fukushima Accident*, WORLD NUCLEAR ASSOCIATION, <http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/fukushima-accident.aspx>.

86. An independent agency of the United States government tasked with protecting public health related to nuclear energy.

87. Acton & Hibbs, *supra* note 49, at 10.

88. *Id.* at 1.

89. *Id.* at 14.

90. *Id.* at 13–14.

disasters. This Article will examine how transparency and international peer process through the International Atomic Energy Agency may strengthen Japan's regulatory system.

Currently, the NRA's Board consists of five Japanese commissioners.<sup>91</sup> It could be beneficial to diversify the board and incorporate international players who can draw attention to his or her homeland industry regulations and ultimately provide a viewpoint removed of any cultural bias and achieve transparency. This note pinpoints the large consequences of *amakudari*, ambiguous policies, and a lack of transparency that greatly contributed to the Great East Japan Earthquake's aftermath. The Fukushima disaster and Japan's bleak nuclear record teach us that transparency can go a long way in reducing the severity and frequency of nuclear incidents. It further promotes public knowledge in support of the industry.<sup>92</sup> Transparency would create a symbiotic relationship because those who are concerned about nuclear operational safety and its impact on the environment would be comforted with periodic updates and information on the operations. One way to increase transparency is to diversify Japan's Nuclear Regulation Authority with diverse and unbiased committee members, namely international agents familiar with nuclear energy and environmental policy.

International influence and participation is key to ensuring that the relevant industry information is properly relayed to the community. International participation can provide valuable health and safety oversight of both regulators and plant operators, ensuring that practices like *amakudari* and operator failed compliance do not go unnoticed.<sup>93</sup> For example, the American Atomic Safety and Licensing Appeal Board recognized the importance of public participation in ensuring nuclear safety, stating:

Our own experience . . . teaches that the generalization [that public participation does not contribute to safety] has no foundation in fact. Public participation . . . not only can provide valuable assistance to the adjudicatory process," but on frequent occasions demonstrably has done so . . . [and] many of the substantial safety and environmental issues which have received the scrutiny of licensing boards were raised in the first instance by the intervener.<sup>94</sup>

Therefore, international involvement at all stages of nuclear construction and operation strengthened safety structures by increasing public scrutiny of safety performance by regulators and operators, in this case, corporate members of

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91. Nuclear Regulation Authority, Japan, NUCLEAR REGULATION AUTHORITY (Oct. 26, 2016) (browse "About NRA," then click on "NRA Commissioners") [https://www.nsr.go.jp/english/e\\_nra/outline/02.html](https://www.nsr.go.jp/english/e_nra/outline/02.html).

92. Benz *supra* note 16, at 869.

93. Benz *supra* note 16, at 869.

94. In the Matter of Gulf States Utilities Company (River Bend Station, Units 1 and 2), ALAB-183, Docket Nos. 50-458, 50-459, 7 A.E.C. 222, 227-28 (Mar. 12, 1974) (citing *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-125, RAI-73-5 371, 374 n.13 (May 25, 1973)) (footnote omitted).

Keidanren. This Article suggests that too much autonomy lies within the operator, advertently Keidanren, because the government officials have not exercised oversight for the operator to feel any substantial pressure to redesign or apply safety modifications.

A diversified NRA board is needed to increase transparency and to motivate nuclear operators to meet their responsibilities and keep with international standards. This would result in coordination among administration and socially responsible decisions on safety issues and incentivize a high level of safety performance by the operator. International involvement and transparency could also ease the tension between the people and the government. If the board and its energy policy committed to diversification, including diverse body of commissioners, there would be less chance of *amakudari* influence within the board itself, and consequently unbiased regulatory guidelines for operators to follow. While Japan may require the use of nuclear energy in the long run, it faces among others, the challenge of dwindling popular support for the industry at home, declining population, and the shift of its manufacturing industry.<sup>95</sup> A diversified board and efforts to inform the citizens about the safety and operation of nuclear facilities could help Japan gain more public support so long as there is regulatory oversight on plant operators and stricter adherence to safety standards.

#### b. Encourage Public Hearings in Japan to Foster Transparency

Japan must also introduce inclusive, unbiased, and periodic public hearings and dialogues without the influence of Keidanren. Public hearings on Japan's energy policy choices were held in the summer of 2012, but they struck many as "staged formalities," and were met with more derision than mobilization.<sup>96</sup> More emphasis must be given to the communities in a "grassroots" process, encouraging mobilization through increased information and transparency. Unlike the Minamata Mercury Pollution case<sup>97</sup> where the court's favor was stacked heavily for the corporation, public hearings should rather focus on equality empowered through the right of information.<sup>98</sup> Public hearings are meant to inform any potential stakeholders and the media about facilities, activities, and safety regulations.<sup>99</sup>

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95. Simon Pollock, Japan's Narrowing Nuclear Path to a Low-Carbon Future, OUR WORLD, <https://ourworld.unu.edu/en/japans-narrowing-nuclear-path-to-a-low-carbon-future> (Oct. 10, 2015).

96. Richard J. Samuel, *In Japan, voters lose interest*, THE BOSTON GLOBE <https://www.bostonglobe.com/opinion/2012/12/21/podium-japan/IbncmkMCjaNAkecv9OkxIO/story.html>.

97. H. Uzawa, *The Responsibility of Chisso in the Minamata Issue*, PROCEEDINGS OF THE INTERNATIONAL FORUM ON MINAMATA DISEASE, 335-37 (1989) (Chisso Factory's wastewater polluted the fisheries around Minamata since the factory began its operations in 1908. However, the effects were not known until much later when residents near the factory began displaying eerily similar and harmful physical effects. This was later known to be mercury poisoning.).

98. See Uzawa, *supra* note 101.

99. PARTICIPEDIA ONLINE ACADEMIC EDITION, <http://participedia.net/en/methods/public-hearing> (last visited Oct. 26, 2016).

As a result, higher involvement within the community is important for the public to be involved throughout the entirety of the nuclear power plant development process without the presence of the company who is under scrutiny, in this case, those businesses who are members of Keidanren. As it stands, the legal requirements for public involvement are unclear and leave companies and local authorities in the dark about how to conduct these hearings, leaving them to devolve into simple explanatory meetings. Japan should undertake environmental review similar to that required by the United States' National Environmental Policy Act.<sup>100</sup> Japan's hearings should not merely attempt to inform the public of decisions made without their input, but should open dialogue, which includes direct interaction between the public and decision-makers. NEPA's Title I illustrates the means and ways to enrich the public's understanding of the environment and to bolster public knowledge:

Include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on —

- i. the environmental impact of the proposed action,
- ii. any adverse environmental effects which cannot be avoided should the proposal be implemented,
- iii. alternatives to the proposed action,
- iv. the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
- v. any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.<sup>101</sup>

Japan's NSA could follow this model and allow periodic publications to any major changes in its energy policies and regulations. Though local and precinct officials may directly respond to the Japanese peoples' concerns, they do so while providing very few details about the environmental and regional impact. To overcome the limited information, Japan should follow NEPA's guidelines, which could ultimately increase the public's awareness and interest in energy reform.

*The Boston Globe* reports that during the general election post Fukushima, despite many well-informed and active citizens standing up with innovative ideas for change, dysfunctions in Japan's political class overwhelmed reform and many voters stayed home, leaving those who voted to express a preference for the status quo ante.<sup>102</sup> Here, Keidanren represents the status quo because of their massive

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100. See National Environmental Policy Act of 1969 [As amended through Dec. 31, 2000 <http://www.epw.senate.gov/nepa69.pdf>].

101. National Environmental Policy Act of 1969, *supra* note 106 at Title 1, Sec. 102, C, i–v.

102. See Samuel, *supra* note 95.

political power and influence on political parties. This is a problem in itself because the government excludes the people, but does not exclude Keidanren, thus giving Keidanren the opportunity to present platforms without any challenges.

Following NEPA's guidelines, Japan's public hearings should also provide the public with information on any potentially harmful consequence of normal operation, abnormal events, and their consequences. This includes emergency procedures, inspection results, and the probabilities of any accidents. Information should also include proposals made by both the Japanese government and Keidanren so that the public is able to understand all spectrums of energy policy arguments. It seems the Japanese government emphasizes only the benefits in order to allay fears concerning radioactivity, while downplaying any negatives or regulatory failings. NSA, can easily remedy this situation by supplying information on the impact of a new policy, any alternatives to the new policy, and the short-term and long-term it has and the Japanese people. NSA has consciously tried to provide annual reports since Fukushima. However, inconsistent follow-ups and weakened accountability may contribute to the lack of transparency and low turnout at public hearings because of distrust.

Currently, NSA and the Japanese government take large steps to create transparency. For example, Japan's major newspapers consistently update information on Fukushima including Japan Times' "Fukushima No. 1" column, which reports strictly on Fukushima-related news and policies.<sup>103</sup> This is an important step to ensure that at least some information is available to Japan's people to instill trust. This new form of transparency could ultimately reform the relationship between Keidanren and the government because each party will now be under public scrutiny and "back door" dialogue would be countered.

#### IV. Conclusion

Fukushima is a reminder of the calculated risk associated with Japan's choice to host nuclear energy sites and emphasizes the importance of implementing a strict and safe energy policy. By failing to sanction plant operators for countless safety violations, providing no concrete regulations, and relying on antiquated risk assessment models, the Japanese government, through NISA, allowed the private energy industry and members of the Keidanren, to rule itself. If Japan wishes to continue on a pro-nuclear path, the government must make changes in its political conduct and in its association with Keidanren. This is essential for Japan's nuclear energy policy moving forward and for the safety of Japanese citizens.

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103. See FUKUSHIMA NO. 1, THE JAPAN TIMES, <http://www.japantimes.co.jp/tag/fukushima-no-1/>.