

Notes

Beyond Control and Without Fault or Negligence: Why Japan Should Be Excused from Meeting Its Kyoto Protocol Obligations

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The purpose of this Note is to show how force majeure can excuse Japan from its reduced CO₂ emissions target due under the Kyoto Protocol. The Kyoto Protocol is the first and only binding international agreement to reduce CO₂ emissions amongst industrialized and developing countries. This Note draws upon contract principles and data sources, including political news sources and environmental studies, to demonstrate how the elements of a force majeure event were met in the wake of the earthquake and tsunami of March 2011 that led to the Fukushima Daiichi Nuclear Power Plant disaster. Through showing how far-reaching simultaneous acts of God can be, this research highlights the importance of a holistic approach in shaping the enforcement of an international agreement like the Kyoto Protocol.

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INTRODUCTION

The Kyoto Protocol is an international agreement that aims to reduce carbon dioxide (“CO₂”) emissions and the presence of greenhouse gases.¹ Countries that ratified the Kyoto Protocol are required to reach their respective reduced CO₂ emissions target.² To meet their reduced CO₂ emissions target, countries have had to restructure their energy portfolios to include low CO₂ emissions energy sources. For example, Japan has restructured its domestic energy portfolio to include nuclear power to effectuate its CO₂ emissions target of seven percent below its 1990 level of CO₂ emissions.³ Feeling confident that Japan would meet its target, in 2010 Japan imposed upon itself a twenty-five percent reduction target for

1. See *infra* Part I.A.

2. See *infra* Part I.A.

3. See *infra* Part II.A.1.

2020 and an eighty percent target for 2050 in Copenhagen.⁴ Japan's commitment to the Kyoto Protocol has been a great source of pride for the nation domestically and internationally.

While nuclear power has been an attractive political tool to demonstrate Japan's commitment to the Kyoto Protocol, the energy source has been disparaged amongst the public of Japan.⁵ Specifically, support of nuclear power in Japan has decreased since the Fukushima Daiichi Nuclear Power Plant ("Fukushima NPP") disaster on March 11, 2011.⁶ The occurrence of the Fukushima NPP disaster brought to light safety concerns prompting the public to implore the government to cease construction of new nuclear power plants and to decommission existing nuclear power plants.⁷ Japan was forced to reassess the role of nuclear power in its efforts to meet its Kyoto Protocol targets, leading it to reduce its nuclear energy supply and diversify its energy portfolio.⁸ In fact, Japan's energy portfolio now focuses on fossil fuel and nonrenewable energy even though those energy sources thwart CO₂ emissions reduction plans.⁹

The Fukushima NPP disaster also forced Japanese political parties to reassess their positions on nuclear power in Japan. The Fukushima NPP disaster demonstrated the dangers of nuclear power, and influenced then-Prime Minister Naoto Kan's radical shift from being a nuclear power proponent to being antinuclear.¹⁰ In fact, shortly after the disaster, Prime Minister Kan declared Japan would phase out nuclear power all together.¹¹ Eventually, Prime Minister Kan would resign due to poor approval rate and handling of the Fukushima NPP disaster.¹²

Prime Minister Kan's immediate successor, Prime Minister Yoshihiko Noda, was elected in 2011 on the platform that Japan would instead reduce, not eliminate, use of nuclear power.¹³ Under Prime Minister Noda, Japan would not build new nuclear power plants nor extend the

4. Sven Rudolph, *Carbon Markets in Japan: Recent Experiences from CO₂ Cap-and-Trade at the National and Local Level*, 6 CARBON & CLIMATE L. REV. 354, 354 (2012); MINISTRY OF THE ENV'T, GOV'T OF JAPAN, OVERVIEW OF THE BILL OF THE BASIC ACT ON GLOBAL WARMING COUNTERMEASURES I (Oct. 8, 2010), <http://www.env.go.jp/press/files/en/387.pdf>.

5. See Lincoln L. Davies, *Beyond Fukushima: Disasters, Nuclear Energy, and Energy Law*, 2011 BYU L. REV. 1937, 1956–57.

6. *Id.*

7. *Id.*

8. *Id.* at 1957–58.

9. *Japan: International Energy Data and Analysis*, U.S. ENERGY INFO. ADMIN., <http://www.eia.gov/beta/international/analysis.cfm?iso=JPN> (last visited Feb. 8, 2016).

10. Hiroko Tabuchi, *Japan Premier Wants Shift Away from Nuclear Power*, N.Y. TIMES, June 14, 2011, at A6.

11. Davies, *supra* note 5, at 1957; see also Peter Drysdale, *Japan's Energy Options After Fukushima*, E. ASIA FORUM (Sept. 5, 2011), <http://www.eastasiaforum.org/2011/09/05/japans-energy-options-after-fukushima/>.

12. Drysdale, *supra* note 11.

13. Davies, *supra* note 5, at 1958; Drysdale, *supra* note 11.

life spans of outdated ones.¹⁴ One year later, Noda was defeated by former Prime Minister Shinto Abe who pledged to move Japan away from nuclear power entirely. While elected on an antinuclear platform, Prime Minister Abe took “a closer look at nuclear power” and “within a week in office” began a plan to build nuclear power reactors.¹⁵ This radical shift on use of nuclear power has driven down Prime Minister Abe’s approval ratings as Japan’s ongoing use of nuclear power continues to spark public outcry.¹⁶ The Fukushima NPP disaster thus has made nuclear power a decisive issue for prime minister elections.

While prime ministers have been elected on a pro or antinuclear power platform, the legislative branch of the Japanese government (“the Diet”) remains uncommitted to any nuclear policy. The Diet established a committee “to investigate the direct and indirect causes” of the Fukushima NPP disaster in order to propose new policy, reduce and prevent future nuclear disasters, and reduce damage on the plant itself.¹⁷ This committee, however, was mandated not to “study matters related to the future energy policies of Japan, including the promotion or abolition of nuclear power,” or to even “study government administrative policies and regulations.”¹⁸ As a result of these affirmative acts to limit its understanding of nuclear energy policy, the Diet is ignorant of any and all nuclear policy options.¹⁹ Accordingly, revisions and amendments of laws and regulations are undertaken on a “patchwork” basis.²⁰ The Diet’s reactive actions combined with its inability to agree on one nuclear power policy has led the Diet to remain uncommitted to *any* nuclear policy. Elected officials are too weary of any political fallout that might come upon them if they take a strong stance on nuclear power. Thus, an environmental and political analysis that studies the role of the Fukushima NPP in pursuing a non- or low-carbon Japan is needed.²¹

Until now, different studies have come to contrasting conclusions about whether Japan will be able to fulfill its Kyoto Protocol obligations in the aftermath of the Fukushima NPP disaster. The studies do not, however, analyze Japan’s legal right to be excused, domestically and

14. Drysdale, *supra* note 11.

15. Hiroko Tabuchi, *Japan’s New Leader Endorses Nuclear Plants*, N.Y. TIMES, Dec. 31, 2012, at A8.

16. Alexander Martin, *Japan Restarts Nuclear Power After Two-Year Shutdown*, WALL ST. J. (Aug. 11, 2015, 12:16 PM), <http://www.wsj.com/articles/japan-restarts-first-reactor-since-fukushima-disaster-1439259270>.

17. See NAT’L DIET OF JAPAN, THE OFFICIAL REPORT OF THE FUKUSHIMA NUCLEAR ACCIDENT INDEPENDENT INVESTIGATION COMMISSION (2012), http://warp.da.ndl.go.jp/info:ndljp/pid/3856371/naic.go.jp/wp-content/uploads/2012/09/NAIIC_report_lo_res10.pdf.

18. *Id.* at 11.

19. *Id.* at 46.

20. *Id.*

21. Davies, *supra* note 5, at 1963; André Semmler, *Renewable Energy in Japan: New Competition in the Energy Market After Fukushima* 5 (Columbia Univ., Sch. of Int’l Pub. Affairs, Apr. 17, 2012), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2124157.

internationally, from the requirements of the Kyoto Protocol due to the Fukushima NPP disaster. This Note argues that Japan's reduced CO₂ emissions targets established by the Kyoto Protocol have been frustrated by the unanticipated events of the Fukushima NPP disaster. While similar *nuclear* disasters have occurred overseas in 1979 and 1986, no country has ever experienced an earthquake, tsunami, and nuclear power plant disaster collectively on one single day.²² Therefore, Japan should use the Fukushima NPP disaster as a legal justification for failing to meet its reduced CO₂ emissions targets obliged under the Kyoto Protocol. Japan has a legal right to formally withdraw from the Kyoto Protocol domestically and internationally under a force majeure argument. However, Japan has not exercised this right in fear that withdrawing will yield more serious international and domestic political consequences than an outright breach. Nevertheless, this Note argues that Japan should make a force majeure argument in order to justify not meeting its Kyoto Protocol targets and avoid international penalties in exiting from the Kyoto Protocol.

This Note will answer the following outstanding issues: (1) Whether Japan's carbon emissions have increased naturally or as a result of the Fukushima NPP disaster; (2) What will be the domestic and international implications of Japan carrying out the reduced nuclear power policy following the Fukushima NPP disaster; (3) Whether Japan's noncompliance with the Kyoto standards is excusable and, if so, what the consequences of this are; and (4) How Japan's emissions limitations should be adjusted to account for the aftermath of the Fukushima NPP disaster. Part I of this Note will explain the Kyoto Protocol, the international agreement at issue, and the events of the Fukushima NPP disaster. Part II will provide an analysis of how the Fukushima NPP disaster affected Japan's energy portfolio, energy policies, and compliance with the Kyoto Protocol. Part III will discuss why Japan will not comply with the Kyoto Protocol and why Japan should be excused from its obligations under the international agreement. It will also demonstrate how Japan can successfully be excused from those obligations under force majeure.

22. On March 28, 1979, the Three Mile Island disaster near Harrisburg, Pennsylvania occurred when the nuclear fuel rods inside the reactor experienced a partial meltdown—meaning some of them overheated and melted. There, the radioactive material never escaped the containment vessel. On April 26, 1986, the Chernobyl disaster near Kiev, Ukraine occurred because the core had not been shut down prior to a test. The power surge triggered events that sent the nuclear reaction out of control, causing two explosions. The reactor was not surrounded by a containment structure, so the explosions and the subsequent fire sent a giant plume of radioactive material into the atmosphere that was dispersed by the winds. See Toshio Serita & Peng Xu, *The Fukushima Nuclear Accident, Damage Compensation Resolution and Energy Stock Returns* (Dec. 7, 2012) (manuscript at 1), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2136060.

I. BACKGROUND: THE KYOTO PROTOCOL

The Kyoto Protocol, adopted in Kyoto, Japan, on December 11, 1997 and entered into force on February 16, 2005, is the first and only binding international agreement to reduce CO₂ emissions amongst industrialized and developing countries.²³ Over 150 countries sent representatives to the United Nations Framework Convention on Climate Change's ("UNFCCC") meeting in Kyoto, Japan, to create a binding agreement to address international climate change.²⁴ At the meeting, thirty-seven industrialized nations agreed to cut their CO₂ emissions by at least "5 per cent below 1990 levels in the commitment period 2008 and 2012."²⁵ For example, Canada agreed to cut its CO₂ emissions level six percent below its respective 1990s CO₂ emission levels.²⁶ Countries in the European Union took a stronger stance and agreed to cut their emissions eight percent below their respective 1990 CO₂ emissions levels.²⁷ Relevant to this Note, Japan agreed to cut its emissions six percent below its 1990 CO₂ emissions level.²⁸ While the Kyoto Protocol bound those thirty-seven industrialized nations, forty-seven other industrialized and developing countries signed with the intent to later opt into the agreement to demonstrate commitment to the global environment.²⁹ This comprehensive agreement is the Kyoto Protocol, and currently 192 parties (191 countries and one regional economic integration organization) have become signatories and are thus bound to reduced CO₂ emissions targets.³⁰ Now, commitments due under the Kyoto Protocol are expiring.³¹

23. See *Kyoto Protocol*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/items/2830.php (last visited Feb. 8, 2016); Fiona Harvey, *World Headed for Irreversible Climate Change in Five Years, IEA Warns*, GUARDIAN (Nov. 9, 2011), <http://www.theguardian.com/environment/2011/nov/09/fossil-fuel-infrastructure-climate-change..>

24. NICOLA ARMAROLI & VICENZO BALZANI, ENERGY FOR A SUSTAINABLE WORLD: FROM THE OIL AGE TO A SUN-POWERED FUTURE III (2011).

25. Kyoto Protocol to the United Nations Framework Convention on Climate Change art. 3, Dec. 11, 1997 [hereinafter Kyoto Protocol].

26. *Id.* annex B.

27. *Id.*

28. *Id.* It is also important to recognize that Japan continued its commitment to CO₂ emission reduction in 2010 by adding a twenty-five percent reduction target for 2020 and an eighty percent target for 2050 in Copenhagen. Rudolph, *supra* note 4; MINISTRY OF THE ENV'T, GOV'T OF JAPAN, *supra* note 4.

29. See *Status of Ratification of the Kyoto Protocol*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php (last visited Feb. 8, 2016).

30. *Id.*

31. Kyoto Protocol, *supra* note 25, art. 3.

A. EXPIRATION AND EXTENSION PERIODS

The Kyoto Protocol consists of two commitment periods: 2008 to 2012 and 2013 to 2020. In 1997, signatories to the Kyoto Protocol agreed that their commitments and obligations would start in 2008 and end in 2012.³² This is known as the first commitment period. Later on December 8, 2012 in Doha, Qatar, the “Doha Amendment to the Kyoto Protocol” was adopted by a majority of Kyoto Protocol signatories to establish a second commitment period.³³ The second commitment period began in 2013 and will end in 2020.³⁴ In effect, the second commitment period extends the life of the Kyoto Protocol and makes major amendments to the original obligations.

The second commitment period has more aggressive CO₂ emissions reduction targets than the first commitment period. While the first commitment period aimed to reduce CO₂ emissions by an average of five percent, the second commitment period aims to reduce CO₂ emissions levels by at least eighteen percent below 1990 levels. As a result, the composition of obliged countries in the second commitment period is different from the first. In fact, forty-four countries, some of which did not ratify the initial Kyoto Protocol, have only ratified the second phase.³⁵ Moreover, despite not ratifying the second phase, countries such as the United States and India have adopted a domestic version of the Kyoto Protocol to curb global CO₂ emissions.³⁶ In the alternative, some countries that did ratify the initial Kyoto Protocol have not ratified the second phase.³⁷ For example, Japan, New Zealand, and the Russian Federation have not ratified the second commitment period.³⁸ Despite the differing composition of the two commitment periods, the original Kyoto Protocol obligations persist under the Doha Amendment. Thereby, the Kyoto Protocol remains pertinent for discussion.

32. Harvey, *supra* note 23.

33. See *Doha Amendment to the Kyoto Protocol*, UNITED NATIONS TREATY COLLECTION, https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-c&chapter=27&lang=en (last visited Feb. 8, 2016).

34. *Id.*; see also *Status of the Doha Amendment*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/doha_amendment/items/7362.php (last visited Feb. 8, 2016).

35. Compare Kyoto Protocol, *supra* note 25, annex B, with *Status of the Doha Amendment*, *supra* note 34.

36. Emily Atkin, *Reports: Japan Will Promise to Reduce Carbon Emissions 20 Percent by 2030*, CLIMATE PROGRESS (Apr. 9, 2015, 12:00 PM), <http://thinkprogress.org/climate/2015/04/09/3644893/japan-climate-change-pledge-maybe/>.

37. *Id.*

38. *Id.*

B. COMPLIANCE MECHANISMS

To effectuate the Kyoto Protocol, attendees of the meeting created a carbon credit scheme. Carbon trading is a market-based tool to limit greenhouse gas emissions and is set out in Article 17 of the Kyoto Protocol.³⁹ Carbon trading “allows countries that have emissions units to spare—emissions permitted them but not ‘used’—to sell this excess capacity to countries that are over their targets.”⁴⁰ These credits are an important component of each country’s strategy to reduce CO₂ emissions because they count toward the country’s CO₂ emissions target. The Kyoto Protocol’s carbon credit scheme has three mechanisms that help the thirty-seven bound countries achieve their respective reduced CO₂ emissions targets: emissions trading, joint implementation, and the clean development mechanism.⁴¹

First, obliged countries “may participate in emissions trading for the purposes of fulfilling their commitments” under the Kyoto Protocol.⁴² Emissions’ trading allows developed countries to trade emissions units amongst themselves.⁴³ Emissions’ trading is beneficial for countries who have rapidly and successfully reduced their domestic CO₂ emissions through various acts and therefore have unused emissions units.⁴⁴ These countries with a surplus of carbon credits may then sell their excess credits to another obliged country that has exceeded its CO₂ emissions target.⁴⁵

Second, the joint implementation mechanism allows one obliged country to invest in CO₂ emissions reduction projects in another obliged country.⁴⁶ When an obliged country carries out or finances a climate protection project in another obliged country, the investing obliged country can credit the resulting emissions reductions to offset its initial allocation of carbon credits.⁴⁷ The recipient country will “gain foreign

39. Kyoto Protocol, *supra* note 25, art. 17.

40. *International Emissions Trading*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/mechanisms/emissions_trading/items/2731.php (last visited Feb. 8, 2016).

41. Kyoto Protocol, *supra* note 25, art. 12, 17; *see also* Sven Rudolph & Friedrich Schneider, *Did the Japanese Patient Follow the Doctor’s Orders? Mostly No! A Public Choice Analysis of Greenhouse Gas Emissions Trading Schemes in Japan Before and After the Earthquake 4* (CESifo Working Paper No. 3639, Nov. 2011).

42. Kyoto Protocol, *supra* note 25, art. 17.

43. U.N. Framework Convention on Climate Change, *Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol*, U.N. Doc. FCCC/KP/CMP/2005/8/Add.2 17–20 (Mar. 30, 2006).

44. *Emissions Trading*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/background/items/2880.php (last visited Feb. 8, 2016).

45. *Id.*

46. *Joint Implementation*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/background/items/2882.php (last visited Feb. 8, 2016).

47. *See id.*

investment and advanced technology” and cannot use this mechanism to achieve more carbon credits than it was initially allocated.⁴⁸ The Joint implementation mechanism is beneficial to countries that seek to produce energy cheaper elsewhere and “realize greater cuts in emissions by doing so.”⁴⁹

Third, the clean development mechanism (“CDM”) works in a similar way to joint implementation; the main difference, however, is that CDM projects are jointly carried out by a developed country with a reduction commitment and a developing country without a reduction commitment.⁵⁰ With CDM, a developed country carries out an emissions-saving climate protection project in a developing country, and these saved units—certified emissions reductions—can be credited to the developed country’s account.⁵¹ The goal of the CDM is not only, as with the first two mechanisms, to make emissions reductions more “cost-effective and offer[] a greater degree of flexibility to industrialized countries trying to meet their targets[;]”⁵² it also serves to assist developing countries, through technology transfer, in establishing a climate-friendly economy.⁵³ While the Kyoto Protocol permits all three mechanisms, the use of these mechanisms must be “additional” to domestic reduction measures.⁵⁴ In sum, no country may comply with its CO₂ emissions reduction commitments exclusively through the use of these three mechanisms.

C. NONCOMPLIANCE GROUNDS

An obliged country might intentionally or unintentionally not comply with the Kyoto Protocol. Intentional noncompliance is caused by deliberate acts to escape that country’s obligations whereas unintentional noncompliance is caused often by incapacity.⁵⁵ Important for this Note, at least two types of incapacity may be distinguished: financial incapacity and administrative incapacity.⁵⁶ Financial incapacity occurs when a country has inadequate economic resources to ensure compliance.⁵⁷ On the

48. *Id.*

49. *Id.*

50. *The Clean Development Mechanism*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/background/items/2881.php (last visited Feb. 8, 2016).

51. *Id.*

52. *Id.*

53. *Id.*

54. Kyoto Protocol, *supra* note 25, art. 6.

55. Abram Chayes et al., *Managing Compliance: A Comparative Perspective*, in *ENGAGING COUNTRIES: STRENGTHENING COMPLIANCE WITH INTERNATIONAL ENVIRONMENTAL ACCORDS* 39–41, 52–54 (Edith B. Weiss & Harold K. Jacobson eds., 1998).

56. David Vogel & Timothy Kessler, *How Compliance Happens and Doesn’t Happen Domestically*, in *ENGAGING COUNTRIES: STRENGTHENING COMPLIANCE WITH INTERNATIONAL ENVIRONMENTAL ACCORDS*, *supra* note 55, at 20–23.

57. *Id.*

other hand, administrative incapacity refers to inadequate bureaucratic resources to issue rules and regulations and to monitor enforcement.⁵⁸ These forms of incapacity relate to whether the noncompliance was “treaty-induced.”⁵⁹

However, an obliged country might also fail to meet its Kyoto Protocol obligations by inadvertence.⁶⁰ Noncompliance by inadvertence refers to when no behavior of the country contributes to the existence of a spontaneous happening, such as an earthquake and tsunami, which prevents fulfillment of contractual obligations. Inadvertence is also called an event of force majeure:

[A] “Force Majeure Event” means any event beyond the reasonable control of the person affected including, without limitation, labour dispute, act of God, war, act or circumstance of terrorism, riot, civil commotion, malicious damage, accident, breakdown of essential computer software, hardware or system failure, fire, flood and/or storm and other unforeseen circumstances materially and adversely affecting the performance [of the country].⁶¹

When a force majeure event causes noncompliance, “for so long as the circumstances continue, [the country] shall be relieved of its obligations under the Terms and Conditions which it has been prevented from fulfilling as a result of that Force Majeure Event without liability.”⁶² Of course, the obliged country must still “take all reasonable and practical steps to minimize any loss and/or disruption resulting from any such Force Majeure Event.”⁶³ The impact of an “act of God” depends on the size and composition of the obliged country, and can lead to noncompliance entirely.⁶⁴

D. CONSEQUENCES OF NONCOMPLIANCE

Article 18 of the Kyoto Protocol handles noncompliance of obliged countries by requiring failing countries to “approve appropriate and effective procedures and mechanisms to determine and address cases of noncompliance.”⁶⁵ To effectuate the “procedures and mechanisms” of failing countries, the Kyoto Protocol establishes a compliance mechanism comprised of two branches: the facilitative branch and enforcement

58. *Id.*

59. Chayes et al., *supra* note 55, at 40.

60. *Id.*

61. U.N. Framework Convention on Climate Change, *Report of the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol on Its Tenth Session, held in Lima from 1 to 14 December 2014*, U.N. Doc. FCCC/KP/CMP/2014/9/Add.1 6 (Feb. 2, 2015) [hereinafter UNFCCC Lima Report].

62. *Id.*

63. *Id.*

64. *Id.*

65. Kyoto Protocol, *supra* note 25, art. 18.

branch.⁶⁶ The facilitative branch provides “advice and assistance” to obliged countries to promote compliance and prevent noncompliance, whereas the enforcement branch is empowered with the “responsibility to determine consequences for Parties not meeting their commitments.”⁶⁷ Thus, the enforcement branch only has discretionary authority to make a finding of noncompliance, and has further discretion to impose hard consequences like financial penalties and trade sanctions once noncompliance has been found. Nonetheless, even these discretionary powers may be discredited when a failing country exercises its right to request “to have its eligibility restored if it believes it has rectified the problem and is again meeting the relevant criteria.”⁶⁸ Accordingly, questions arise as to whether the decisions of the enforcement branch are legally binding.

The enforcement branch is afforded three means to enforce compliance upon failing obliged countries. First, the noncompliant country must present a plan demonstrating how it intends to restore compliance with the Kyoto Protocol.⁶⁹ This plan may account for additional costs of buying carbon credits. For example, if an obliged country expects its CO₂ emissions would be thirty percent above its reduction target, the country would be forced to buy carbon credits to make its targets.⁷⁰ Such an act “would cost the country nearly \$14 billion” to remain part of the Kyoto Protocol.⁷¹ Second, in the next commitment period, it must cover its deficit, plus another thirty percent of that deficit, in addition to whatever its commitment would be for that period.⁷² Finally, the country loses its eligibility to sell carbon credits under the carbon trading mechanism of the Kyoto Protocol.⁷³ If a country fails these three paths toward compliance, then the failing country will be suspended from participating

66. *An Introduction to the Kyoto Protocol Compliance Mechanism*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/compliance/items/3024.php (last visited Feb. 8, 2016). The Kyoto Protocol’s compliance system is laid out by the Marrakesh Accords, which establish both the facilitative branch and enforcement branch. *Id.*

67. *Id.*

68. *Id.*

69. *Id.*

70. See Matthew Carr, *Japan May Declare Force Majeure on Kyoto Protocol, Orbeo Says*, BLOOMBERG BUS. (Mar. 14, 2011, 10:08 AM), <http://www.bloomberg.com/news/articles/2011-03-14/japan-may-declare-force-majeure-on-kyoto-protocol-orbeo-says>; see also Bryan Walsh, *Bienvenue au Canada: Welcome to Your Friendly Neighborhood Petro-State*, TIME MAG. (Dec. 14, 2011), <http://science.time.com/2011/12/14/bienvenue-au-canada-welcome-to-your-friendly-neighborhood-petrostate/>.

71. Walsh, *supra* note 70.

72. LEGAL RESPONSE INITIATIVE, KYOTO COMPLIANCE MECHANISM ¶ 5 (July 19, 2010), <http://legalresponseinitiative.org/wp-content/uploads/2013/04/BP12E-Briefing-Paper-Kyoto-Compliance-Mechanism-19-July-2010.pdf>.

73. U.N. Framework Convention on Climate Change, *Report of the Conference of the Parties on its Seventh Session, Held at Marrakesh from 29 October to 10 November 2001*, U.N. Doc. FCCC/CP/2001/13/Add.1 (Jan. 21, 2002).

in further Kyoto Protocol discussions.⁷⁴ Notably, that failed country may only incur binding consequences when an “amendment” saying so has been adopted into the Kyoto Protocol.⁷⁵ Because an amendment requires three-fourths ratification of participating countries, the Kyoto Protocol has not, and arguably does not, lend itself well to the establishment of hard sanctions for noncompliance.⁷⁶

E. WITHDRAWAL METHODS

When an obliged country wishes to withdraw in anticipation of noncompliance the Kyoto Protocol provides two methods of withdrawal: explicit “written notification” or implied force majeure.⁷⁷ Article 27 of the Kyoto Protocol handles withdrawal of obliged countries by requiring the country to “giv[e] written notification” and placing conditions upon complete withdrawal.⁷⁸ For example, the “written notification” may only be given after three years of compliance efforts.⁷⁹ Because the Kyoto Protocol was entered into force on February 16, 2005, then by definition the earliest withdrawal notification may have been given on February 16, 2008.⁸⁰ Also, “written notification” does not serve as immediate withdrawal. Instead, “withdrawal shall take effect upon expiry of one year from the date of receipt . . . of the notification of withdrawal, or on such later date as may be specified in the notification of withdrawal.”⁸¹ Therefore, assuming an obliged country provided written notification on the first available day and that was received by the UNFCCC on the same day, a country could withdraw no earlier than February 16, 2009. Despite this early date, Canada became the first country to “exercise its legal right to formally withdraw from the Kyoto Protocol” by giving written notification to the UNFCCC on December 15, 2011.⁸² Canada withdrew because it anticipated it “would have had to purchase a significant and costly amount of international credits using funds that could be invested” domestically during an economic crisis.⁸³ True to its word, in 2012, Canada abandoned all efforts to meet its reduced CO₂ emissions target and has successfully withdrawn from the Kyoto

74. Kyoto Protocol, *supra* note 25, art. 6, 12, 17.

75. See *An Introduction to the Kyoto Protocol Compliance Mechanism*, *supra* note 66.

76. Kyoto Protocol, *supra* note 25, art. 20.

77. See *id.* art. 27.

78. *Id.* (“At any time after three years from the date on which this Protocol has entered into force for a Party, that Party may withdraw from this Protocol by giving written notification to the Depository.”).

79. *Id.*

80. See *Kyoto Protocol*, *supra* note 23.

81. Kyoto Protocol, *supra* note 25, art. 27.

82. ENV'T CAN., A CLIMATE CHANGE PLAN FOR THE PURPOSES OF THE KYOTO PROTOCOL IMPLEMENTATION ACT 5 (May 2012).

83. *Id.*

Protocol.⁸⁴ It is expected countries might likewise exercise their legal right to withdraw under this method to escape obligations in the second commitment period despite those countries having had twelve years to comply with their Kyoto Protocol obligations.⁸⁵

In the alternative, a country may withdraw when noncompliance is a result of a force majeure event.⁸⁶ As stated earlier, “any event beyond the reasonable control” of the country, including a simultaneous earthquake and tsunami, may excuse the country from its Kyoto Protocol obligations “so long as such circumstances continue” and prevent the country from fulfilling its obligations.⁸⁷ Therefore, should a country experience a force majeure event and expect to not reach its CO₂ emissions targets, a country may successfully declare force majeure to withdraw and prevent having to implement new compliance mechanisms, including buying additional emissions permits. While no country has exercised this implied withdrawal method yet, other countries have used contractual loopholes to escape obligations under other international agreements. For example, the International Whaling Convention (“IWC”) in 1986 banned the practice of commercial whaling.⁸⁸ Despite having initially signed the IWC agreement, Norway and Iceland exercised the IWC’s escape clause to resume commercial whaling operations.⁸⁹ Similarly, this Note argues that Japan’s reduced CO₂ emissions targets established by the Kyoto Protocol have been frustrated by the unanticipated events of the Fukushima NPP disaster.

F. THE FUKUSHIMA DAIICHI NUCLEAR POWER PLANT DISASTER

On March 11, 2011 at 14:46 JST, Japan’s most powerful recorded earthquake hit with a magnitude of 9.03.⁹⁰ The Great East Japan Earthquake produced a powerful tsunami that reached heights of up to 131 feet and traveled up to 6.2 miles inland.⁹¹ The tsunami inundated about 216 square miles, and caused 15,893 deaths, 6152 injuries, and 2572

84. *Id.*

85. The date represents twelve years of compliance efforts under the logic that a country signed the Kyoto Protocol at the conference on December 11, 1997 and immediately began efforts to comply with its Kyoto Protocol obligations to prepare for the enforcement period beginning February 16, 2005.

86. UNFCCC Lima Report, *supra* note 61, at 6.

87. *Id.*

88. *Which Countries Are Still Whaling?*, INT’L FUND FOR ANIMAL WELFARE, <http://www.ifaw.org/united-states/our-work/whales/which-countries-are-still-whaling> (last visited Feb. 8, 2016).

89. *Id.*

90. Serita & Xu, *supra* note 22, at 1; Hrabrin Bachev & Fusao Ito, *Fukushima Nuclear Disaster—Implications for Japanese Agriculture and Food Chains* (Sept. 3, 2013) (manuscript at 1), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2319767; INT’L ATOMIC ENERGY AGENCY, MISSION REPORT: INTERNATIONAL FACT FINDING EXPERT MISSION OF THE FUKUSHIMA DAI-ICHI NPP ACCIDENT FOLLOWING THE GREAT EAST JAPAN EARTHQUAKE AND TSUNAMI 19 (June 2, 2011).

91. Serita & Xu, *supra* note 22, at 1; Bachev & Ito, *supra* note 90, at 1; INT’L ATOMIC ENERGY AGENCY, *supra* note 90, at 19.

missing people.⁹² The combined earthquake and tsunami also destroyed properties along the northeast coast of Japan. One report stated that the natural disasters caused 121,782 buildings to totally collapse, an additional 278,049 buildings to “half collapse,” and a further 726,110 buildings to be partially damaged.⁹³ Important for this Note, one of those damaged buildings was the Fukushima Daiichi Nuclear Power Plant (“Fukushima NPP”).⁹⁴ In the course of that damage, the Fukushima NPP’s cooling system began to fail, causing large explosions, Level 7 meltdowns⁹⁵ and, subsequently, a huge release of radioactivity into the environment.⁹⁶ The incidents surrounding the Fukushima NPP disaster classified it as one of the world’s largest nuclear disasters to date and served as a catalyst to force Japan to reevaluate its energy portfolio, both domestically and internationally.⁹⁷

II. ANALYSIS: JAPAN POST-FUKUSHIMA NUCLEAR POWER PLANT DISASTER

The Fukushima NPP disaster led to a strong shift in Japan’s energy portfolio, driven by safety concerns and public outcry solidly disfavoring use of nuclear power.⁹⁸ Before the Fukushima NPP disaster, two-thirds of the Japanese public regularly supported increasing the number of nuclear power plants.⁹⁹ Now, the same percentage of residents opposes the use of nuclear power in Japan.¹⁰⁰ Another poll showed seventy-four percent of Japanese citizens supported the phase out of nuclear power post-Fukushima, while another sixty percent expressed little or no

92. ROBERT DINWIDDIE, *OCEAN: THE DEFINITIVE VISUAL GUIDE* 463 (2014); NAT’L POLICE AGENCY OF JAPAN, EMERGENCY DISASTER COUNTERMEASURES HEADQUARTERS, DAMAGE SITUATION AND POLICE COUNTERMEASURES ASSOCIATED WITH 2011 TOHOKU DISTRICT OFF THE PACIFIC OCEAN EARTHQUAKE (Dec. 10, 2015).

93. NAT’L POLICE AGENCY OF JAPAN, *supra* note 92.

94. Serita & Xu, *supra* note 22, at 1; Bachev & Ito, *supra* note 90, at 1; INT’L ATOMIC ENERGY AGENCY, *supra* note 90, at 19.

95. A Level 7 meltdown is the highest level a nuclear event can reach according to the International Nuclear and Radiological Event Scale, and is defined as “[a] major release of radioactive material with widespread health and environmental effects requiring implementation of planned and extended countermeasures.” Talea Miller, *Rating Nuclear Accidents and Incidents: Which Were the Worst?*, PBS NEWSHOUR (Mar. 18, 2011, 11:40 AM), www.pbs.org/newshour/rundown/worst-nuclear-accidents-in-history/; see also *The International Nuclear and Radiological Event Scale*, INT’L ATOMIC ENERGY AGENCY, www-ns.iaea.org/tech-areas/emergency/ines.asp (last visited Feb. 8, 2016).

96. Serita & Xu, *supra* note 22, at 1; Bachev & Ito, *supra* note 90, at 1.

97. See Bachev & Ito, *supra* note 90, at 1.

98. Kerin Cantwell et al., *Japan’s New Energy Market*, in *GLOBAL PROJECT FINANCE—ENERGY, PROJECT PERSPECTIVES* 2122 (Summer 2012), <https://www.akingump.com/images/content/4/4/v4/4462/Project-Perspectives-Newsletter-Summer2012.pdf>.

99. See YOUNG-DOO WANG ET AL., *CTR. FOR ENERGY & ENVTL. POLICY, INTERNATIONAL ENERGY POLICY IN THE AFTERMATH OF THE FUKUSHIMA NUCLEAR DISASTER: AN ANALYSIS OF ENERGY POLICIES OF THE U.S., U.K., GERMANY, FRANCE, JAPAN, CHINA AND KOREA* (2013).

100. *Id.*

confidence in the safety of the technology.¹⁰¹ Such public aversion was illustrated immediately after the Fukushima NPP disaster when tens of thousands of demonstrators gathered in Tokyo, and thousands more assembled elsewhere across Japan, to demand a permanent shutdown of the nation's nuclear plants.¹⁰² Shortly thereafter, public outcry continued to build and weekly demonstrations took place throughout the nation.¹⁰³ For example, two months after the Fukushima NPP disaster, nearly 5500 people attended an antinuclear energy rally in Tokyo to celebrate together as the last of the nation's fifty nuclear reactors was switched off.¹⁰⁴ The momentum continued two months later when an antinuclear demonstration amassed over 170,000 people, making it the largest demonstration in national history.¹⁰⁵ The Fukushima NPP disaster refocused Japan's energy portfolio and policies, placing an importance on immediate economic security over long-term safety and environmental concerns.¹⁰⁶

A. ENERGY PORTFOLIO AND POLICIES

1. Domestic Power Production

Prior to the Fukushima NPP disaster, Japan had planned to boost nuclear power production to more than fifty percent of its electricity by 2030 from around thirty percent, partly to fight climate change.¹⁰⁷ The need for power is high because Japan is the third largest overall energy consumer globally, behind China and the United States.¹⁰⁸ Nevertheless, after the Fukushima NPP disaster, Japan has had to reduce the volume of power consumed nationally as it drastically shifts its energy portfolio in response to pressure from the public to focus on renewable energy.¹⁰⁹

Following the Fukushima NPP disaster, Japan progressively shut down all of its nuclear power plants despite most of its fifty-plus nuclear

101. Davies, *supra* note 5, at 1956.

102. Olga Belogolova, *Why Japan Can't Quit Nuclear Power*, YAHOO NEWS: NAT'L J. (Feb. 15, 2013, 9:30 AM), <http://news.yahoo.com/why-japan-cant-quit-nuclear-power-143033191--politics.html>.

103. *Id.*

104. *Thousands March as Japan Switches Off Nuclear Power*, ASAHI SHIMBUN: ASIA & JAPAN WATCH (Mar. 6, 2012), http://ajw.asahi.com/article/behind_news/social_affairs/AJ201205060016.

105. Belogolova, *supra* note 102.

106. *Id.*

107. See AGENCY FOR NAT. RES. & ENERGY, MINISTRY OF ECON., TRADE & INDUS. OF JAPAN, THE STRATEGIC ENERGY PLAN OF JAPAN (2014), http://www.enecho.meti.go.jp/en/category/others/basic_plan/pdf/4th_strategic_energy_plan.pdf.

108. Semmler, *supra* note 21, at 3; see also Hiroko Tabuchi, *Quake in Japan Causes Costly Shift to Fossil Fuels*, N.Y. TIMES, Aug. 20, 2011, at B2 ("Japan, the world's third-largest user of electricity behind China and the United States . . .").

109. Tabuchi, *supra* note 108.

power plants being operable.¹¹⁰ As a result, Japan has had to rely on “coal, oil, and liquefied natural gas for nearly 90% of its power needs.”¹¹¹ In the wake of the Fukushima NPP disaster, while nuclear energy dropped 100%, gas and oil production increased 10% and 53% respectively.¹¹² Finally, on April 11, 2014, the Japanese government agreed on a single strategic energy plan.¹¹³

The 2014 Strategic Energy Plan includes four basic principles, including safety and energy security.¹¹⁴ The first confirms the “3E + S” thrust of Japanese energy policy, which emphasizes “Energy Security” while striving for greater “Economic Efficiency” and harmony with the “Environment,” with “Safety” as a basic premise.¹¹⁵ The second principle is “building a multilayered and diversified flexible energy supply-and-demand structure.”¹¹⁶ What these principles amount to in policy terms is a complete overhaul of the status quo in Japan’s energy supply system. More specifically, the energy reform redefines the roles of fossil fuels, nuclear power, and renewable energy in Japan’s domestic energy portfolio. While the direction of the domestic energy portfolio is clear, there remain policy obstacles in executing such a reactionary and drastic change to the well-developed energy portfolio that existed prior to the Fukushima NPP disaster.

There are two main policies that arose out of the Fukushima NPP disaster: the Nuclear Damage Liability Facilitation Fund Act (“Fund Act”) and the contagion effects on undamaged energy companies. Five months after the Fukushima NPP disaster, the Fund Act was adopted to provide expeditious and appropriate compensation for nuclear damage, and ensure a stable supply of electricity and the smooth and uninterrupted operation of nuclear reactors.¹¹⁷ The Fund Act adopted a

110. See *Nuclear Power in Japan*, WORLD NUCLEAR ASS’N, <http://www.world-nuclear.org/info/Country-Profiles/Countries-G-N/Japan/> (last updated Nov. 19, 2015).

111. See Semmler, *supra* note 21, at 6–7; see also Hisashi Hattori, *Analysis: Japan’s Energy Policy Has Been Governed by Series of Shocks*, ASAHI SHIMBUN (May 5, 2012), <http://ajw.asahi.com/article/0311disaster/fukushima/AJ201205050050>; Mari Iwata & Henry Hoenig, *Japan Struggles to Find Balanced Energy Strategy*, WALL ST. J. (May 13, 2015, 11:36 PM), <http://www.wsj.com/articles/japan-struggles-to-find-balanced-energy-strategy-1431545581>; Justin McCurry, *Japan’s New Prime Minister Promises Ambitious Greenhouse Gas Cuts*, GUARDIAN (Sept. 7, 2009), <http://www.theguardian.com/environment/2009/sep/07/japan-greenhouse-gas-cuts>.

112. Japan generated 1059 terawatt-hours (“TWh”) gross, 338 TWh from coal, 408 TWh from gas (up from 300 TWh in 2010), 9 TWh from nuclear (cf 288 TWh in 2010), 161 TWh from oil (up from 94 TWh in 2010), and 84 TWh from hydro. See *Japan: International Energy Data and Analysis*, *supra* note 9.

113. See *Cabinet Decision on the New Strategic Energy Plan*, AGENCY FOR NAT. RES. & ENERGY, MINISTRY OF ECON., TRADE & INDUS. OF JAPAN, http://www.meti.go.jp/english/press/2014/0411_02.html (last visited Feb. 8, 2016).

114. *Id.*

115. *Id.*

116. AGENCY FOR NAT. RES. & ENERGY, *supra* note 107, at 18.

117. See generally Serita & Xu, *supra* note 22 (examining Japanese market activity in the period after the NPP disaster and passage of the Fund Act). The Fund Act was adopted by the Cabinet on

financial assistance scheme to insulate energy companies from bankruptcy and dissolution when it is found liable for particular acts so egregious that a resulting judgment would cause the energy company to become insolvent.¹¹⁸ The Fund Act was particularly enacted to serve the owner and operator of the Fukushima NPP, the Tokyo Electric Power Company (“TEPCO”), in anticipation of its liability for the Fukushima NPP disaster.¹¹⁹ Essentially, use of the Act converts commercial electric power companies into state-owned enterprises, allowing consumers to pay the electricity bill and pay for losses of monopolistic electric power companies upon proof of liability.¹²⁰ For example, when TEPCO was found negligent in its maintenance and operation of the Fukushima NPP, and therefore liable for the Fukushima NPP disaster, recovery for losses to victims from TEPCO would have been enormous. Because TEPCO would owe money and penalties in excess of its income stream, TEPCO would have been forced into bankruptcy and closure, resulting in loss of electrical power, amongst other energy sources, to all consumers in its region. In other words, judgment owed by TEPCO would hurt the public and therefore be counterintuitive to its purpose. To avoid insolvency and any social, political, and economic ramifications that insolvency might have created, the Fund Act was triggered and enabled recovery owed by TEPCO to be shifted to the Japanese government and ultimately the Japanese public at large.¹²¹ Therefore, the Fund Act allowed TEPCO to continue to operate and victims to be made whole.

The Fund Act limits energy companies’ liability when the energy company operates to effectuate Japan’s climate laws. The Fund Act is just one demonstration of how the Japanese government has drastically changed its law and policy on climate law. However, it remains unclear how the Fund Act will help Japan’s domestic energy portfolio and, in turn, whether it will help Japan meet its Kyoto Protocol obligations given that absent the Fund Act, undamaged power companies would be entitled to keep their respective economic gains. However, under the Fund Act terms, these segmented regional monopolistic companies must use their profits to assist TEPCO pay its judgment.¹²² As a result, the Fukushima NPP disaster has indeed created detrimental contagion effects to undamaged power companies.

The second policy obstacle with the new domestic energy portfolio is concerned with significant economic changes experienced by energy

June 14, 2011, revised and passed by special committee of the House on July 25, 2011, and passed by the Diet on August 3, 2011. *Id.* at 28.

118. See SERITA & XU, *supra* note 22.

119. *Id.*

120. *Id.* at 29.

121. *Id.*

122. *Id.* at 28–29.

companies that were not damaged or directly affected by the Fukushima NPP disaster. The Fukushima NPP disaster adversely affected TEPCO directly and contagion effects were felt by non-TEPCO companies that did not experience damage, but nevertheless, became subject to sweeping energy portfolio and policy changes domestically. Like the United States, the Japanese government does not own or operate domestic energy production; rather, a collective of ten local power companies control the domestic energy market, and these nongovernmental companies rarely compete with marginalized fringe firms that dare to emerge.¹²³ Furthermore, similar to how the energy market operates in the United States, these monopolies generate, transmit, and distribute electricity exclusively to their segregated regions.¹²⁴ Therefore, each power company has a duty and responsibility to provide energy to any and all customers in that area.¹²⁵ In other words, each power company cannot and does not operate beyond its established borders, and therefore effects from Fukushima NPP disaster did not directly spread to other energy industries or companies due in large part to the fact that segmented regional monopolistic companies produce domestic energy. Nevertheless, energy companies nationally have transformed Japan's energy portfolio through technology and other economic efforts to create a low-carbon, nuclear free society.¹²⁶

First, general electric utilities have had to forego traditional means of electricity generation and, in the immediate aftermath of the disaster, experienced stoppages imposed on them by the government due to no culpable behavior or action of their own. Utilities companies taking issue with this is valid given that the six-month temporary stoppage in the summer of 2012 cost eight of the ten power utilities \$8.5 billion because they had to buy more oil and gas to replace idle nuclear reactors.¹²⁷ Such

¹²³. *Id.* at 8.

¹²⁴. *Id.* at 8–9. In the United States,

the pact that utilities have made in exchange for an exclusive service territory is to provide energy to any and all customers in that area. The assumption is that the level of energy demand in the territory is irrelevant because the supply the utility provides will be abundant and secure. The law compels utilities to abide by energy policy's overarching objectives— including to assure abundant power supplies.

Davies, *supra* note 5, at 1968.

¹²⁵. See Serita & Xu, *supra* note 22, at 8–9. As courts have repeatedly held,

[T]he term 'public utility' implies a public use, carrying with it the duty to serve the public and treat all persons alike, without discrimination, and it precludes the idea of service which is private in its nature, whether for the benefit and advantage of a few or of many

Id.

¹²⁶. Semmler, *supra* note 21, at 29; Yoshifumi Nakashima, *Launch of a New Climate Change Campaign, "Fun to Share"*, JAPAN ENV'T Q. (June 2014), <http://www.env.go.jp/en/focus/jeq/issue/vol06/feature.html>.

¹²⁷. See Belogolova, *supra* note 102.

costs then passed on to the consumers who experienced an energy bill increase of 8.5% despite Japan's energy costs already being among the highest in the world due to the imposed stoppages.¹²⁸ Moreover, when the Japanese government was considering a nuclear phase out, one study found that such a take-it-or-leave-it stance would cost consumers \$10 billion (or \$115 per household) and businesses \$22 billion.¹²⁹ The fallout would have cost some 420,000 on-site jobs, leading to an approximately \$11 billion annual decline in corporate tax revenue, and thereby escalating the already massive debt problem faced by the world's third largest economy.¹³⁰ Such economic instability is not desired, especially amongst the private energy industry that would get the brunt of the vicious cycle. According to the chairman of Sumitomo Chemical and head of Japan's largest business lobby, Japanese energy companies would have to "start to move overseas" if prolonged energy shortages are forecasted, or if national policy effects from the post-Fukushima NPP disaster prove to be too detrimental.¹³¹

The sudden and heavy retreat from nuclear power to fossil fuels has caused a direct increase in CO₂ emissions by 1.4%, in direct opposition to Japan's Kyoto Protocol reduction target.¹³² Accordingly, in August 2015, Prime Minister Abe took a decisive step toward resurrecting the nuclear power industry and ending a de facto freeze on the use of nuclear power by restarting a reactor at the Sendai Nuclear Power Plant.¹³³ Other reactors might restart too.¹³⁴ Still, questions arise as to whether Japan will also comply with the Kyoto Protocol. The Japanese government struggles to agree on both a coherent long-term domestic energy portfolio and the country's role in the international energy market.

2. *International Power Production*

Japan lacks minerals and energy domestically, and, as a result of this geographic and commodity vulnerability, Japan has a substantial international energy portfolio given that it "needs to import about 84% of its energy requirements."¹³⁵ To illustrate, prior to the Fukushima NPP disaster, Japan was the third largest producer of nuclear energy¹³⁶ and imported ninety-three percent of its energy supply.¹³⁷ To meet its needs,

128. *Id.*

129. *Id.*

130. *Id.*

131. See Tabuchi, *supra* note 108.

132. Mari Iwata, *Japan CO₂ Emissions Worst on Record*, WALL ST. J. (Nov. 17, 2014, 5:50 PM), <http://blogs.wsj.com/japanrealtime/2014/11/17/japan-co2-emissions-worst-on-record/>.

133. Martin, *supra* note 16.

134. *Id.*

135. *Nuclear Power in Japan*, *supra* note 110.

136. Belogolova, *supra* note 102.

137. Semmler, *supra* note 21, at 3.

Japan structured its international energy dealings so that it receives a supply of fossil fuels cheaply from other countries.¹³⁸ However, in the wake of the Fukushima NPP disaster, the Japanese government has adopted an energy import model.

Under an energy import model, utility companies continue to import natural gas to generate power while the Japanese government develops energy production sources abroad. For example, utility companies import eighty percent of Japan's oil and twenty percent of its natural gas from the Persian Gulf through the Strait of Hormuz.¹³⁹ Meanwhile, the Japanese government has adopted an energy import model akin to South Korea, Russia, and France.¹⁴⁰ Those countries have successfully contracted with emerging and developing countries to build, own, and operate power plants for energy export to their respective countries.¹⁴¹ Pertinent here, Japan continues to seek contracts with countries such as Malaysia, India, Kazakhstan, Kuwait, and Jordan to develop and export energy for consumption in Japan.¹⁴² Japan continues to adhere to its energy import model despite the scarcity of countries willing to risk international sanctions as they increase their CO₂ emissions for Japan.¹⁴³

Moreover, the energy import model has aggregated Japan's trade deficit, placing an extra burden on the national economy.¹⁴⁴ In fact, energy imports accounted for fifty-five percent of Japan's \$169 billion trade deficit from 2011 through 2013.¹⁴⁵ To alleviate the financial burden, Japan created its first domestic carbon tax, the Tax for Climate Change Mitigation, which began to be enforced in 2012.¹⁴⁶ This carbon tax spreads the burden of fossil fuel use widely and thinly in an effort to leverage economic incentives through taxation and strengthen energy-

138. *Id.* at 5.

139. See *Abe Seeks to Allow SDF Minesweeping in Strait of Hormuz*, *Citing Economic, Energy Risk*, ASAHI SHIMBUN (Feb. 17, 2015), http://ajw.asahi.com/article/behind_news/politics/AJ201502170036.

140. See *Japan's Nuclear Power Policy at a Crossroads*, ASAHI SHIMBUN (Mar. 16, 2011), <http://ajw.asahi.com/article/0311disaster/fukushima/AJ201103162974>.

141. *Id.*

142. *Id.*

143. *Id.*

144. Yuriy Humber & Chikako Mogi, *Japan's Idled Reactors, Weak Yen Drive Deficit on Energy*, BLOOMBERG BUS. (Sept. 18, 2014, 3:00 PM), <http://www.bloomberg.com/news/articles/2014-09-18/japan-s-idled-reactors-weak-yen-drive-deficit-on-energy>.

145. *Id.* ("With renewable energy not widespread enough to fill the gap, utilities and other companies have had to import natural gas to generate power. From 2011 through 2013, Japan's trade balance worsened by a cumulative 18.1 trillion yen (\$169 billion), estimates Taro Saito, director of economic research at the NLI Research Institute in Tokyo. Of that amount, 10 trillion yen, or 55%, came from energy imports. As a result, Japan's trade balance has been in the red every month since June 2012 As a result of the high cost of imported fuel, Japan's current account registered a \$3.9 billion monthly deficit in June. If such deficits persist, downward pressure on the yen could build.")

146. MINISTRY OF THE ENV'T, DETAILS ON THE CARBON TAX (TAX FOR CLIMATE CHANGE MITIGATION), http://www.env.go.jp/en/policy/tax/env-tax/20121001a_dct.pdf (last visited Feb. 8, 2016).

related CO₂ emissions control measures.¹⁴⁷ Still, questions arise as to whether an energy import model and carbon tax program are long-term solutions to help Japan comply with the Kyoto Protocol.

B. COMPLIANCE GOALS

Despite the Fukushima NPP disaster, Japan has remained committed to complying with its goal of reducing CO₂ emissions to seven percent below 1990 levels. To do this, Japan established domestic compliance mechanisms, adopted Germany's post-Fukushima NPP disaster energy model, and created a regulatory authority to oversee its domestic nuclear power industry.

1. Domestic Compliance Mechanisms

In addition to using the carbon trading mechanisms to meet its CO₂ emissions targets, Japan has adopted two domestic market-based policies, a cap-and-trade program and a limited feed-in tariff.¹⁴⁸ A cap-and-trade policy is based on quantity.¹⁴⁹ Instead of setting a price on each unit of pollution, the Ministry of Environment for Japan determines a total quantity of pollution ("cap") allowed per participant.¹⁵⁰ Similar to the Kyoto Protocol's carbon trading system, these domestic CO₂ emissions allowances are bought and sold between companies based on their needs.¹⁵¹ Moreover, the government has the authority to issue penalties (or other appropriate actions) to companies who fail to purchase credits when they exceed their allocation.¹⁵² The cap-and-trade system serves to make renewables cost competitive with fossil fuels and reduce CO₂ emissions.¹⁵³ However, Japan has not implemented a cap-and-trade-policy nationally.¹⁵⁴ For example, Tokyo, Japan's largest CO₂ emitter

¹⁴⁷ *Id.*

¹⁴⁸ *Japan: Carbon Pricing Experience*, PARTNERSHIP FOR MKT. READINESS, <https://www.thepmr.org/country/japan-0> (last visited Feb. 8, 2016); OFFICE OF MKT. MECHANISMS, MINISTRY OF THE ENV'T OF JAPAN, CONSIDERATION OF EMISSIONS TRADING SCHEME IN JAPAN 3, 5 (Apr. 2012), https://www.env.go.jp/en/earth/ets/mkt_mech/scheme-emissions_trading.pdf; INT'L EMISSIONS TRADING ASS'N, JAPAN: THE WORLD'S CARBON MARKETS: A CASE STUDY GUIDE TO EMISSIONS TRADING 2 (Sept. 2013), http://www.ietat.org/assets/Reports/EmissionsTradingAroundTheWorld/edf_ietat_japan_case_study_september_2013.pdf.

¹⁴⁹ See James W. Coleman, *Unilateral Climate Regulation*, 38 HARV. ENVTL. L. REV. 87, 122–23 (2014).

¹⁵⁰ *Id.*; MINISTRY OF THE ENV'T OF JAPAN, SCHEME OPTIONS FOR JAPANESE EMISSIONS TRADING SCHEME BASED ON CAP AND TRADE SYSTEM 3 (Sept. 2010), https://www.env.go.jp/en/earth/ets/mkt_mech/scheme-options100910.pdf.

¹⁵¹ *Id.* at 10.

¹⁵² *Id.* at 8, 21.

¹⁵³ Semmler, *supra* note 21, at 25.

¹⁵⁴ *Id.* at 15–16, n.28 ("Cap-and-trade is a system for the reduction of carbon emissions. A governmental body will set a cap on the amount of a pollutant which may be emitted overall. Firms are then forced to buy permits equivalent to their CO₂ emissions. By capping the overall number of

and the world's most populated metropolis, has its own cap-and-trade policy.¹⁵⁵ Despite having had “remarkable reductions,” Tokyo’s cap-and-trade policy remains limited geographically and has not been adopted nationally.¹⁵⁶ Accordingly, domestic mechanisms to reduce CO₂ emissions remain limited, and as a result, Japan might not be able to attain its Kyoto Protocol obligations.

Absent a cap-and-trade policy, the Japanese government has established a limited feed-in tariff.¹⁵⁷ The tariff is limited because the policy applies only to “surplus electricity generated through solar PV from residential, non-business owners.”¹⁵⁸ Moreover, the tariff requires electronic power suppliers to procure the whole renewable electricity at a fixed price, and each supplier collects surcharges from electricity users to cover the costs.¹⁵⁹ This domestic mechanism has reduced negative externalities from fossil fuels and reduced amounts of fossil fuel and uranium imports, allowing the feed-in tariff to “pay for itself within a year.”¹⁶⁰ The feed-in tariff has been Japan’s most effective policy tool for diffusing solar energy.¹⁶¹ As a result, the feed-in tariff is a more popular domestic mechanism than a national cap-and-trade policy because the tariff option imposes more economic flexibility should Japan not be able to comply with the Kyoto Protocol.¹⁶²

2. *Modeling a New Energy Portfolio After Germany*

A year before the Fukushima NPP disaster, Germany had brokered a deal to extend the lives of its seventeen active nuclear power plants by twelve years and was expanding its renewable energy market.¹⁶³ For example, Germany was quickly expanding its solar capacity given that its solar resources were fourteen percent less than Japan’s solar resources at

permits and gradually reducing them, policy makers have a mechanism of putting a price on the social cost of carbon, as well as reducing a country’s emissions.”).

155. TOKYO METROPOLITAN GOV’T, TOKYO CLIMATE CHANGE STRATEGY: PROGRESS REPORT AND FUTURE VISION (Mar. 31, 2010), https://www.kankyo.metro.tokyo.jp/en/attachement/tokyo_climate_change_strategy_progress_report_03312010.pdf; BUREAU OF THE ENV’T, TOKYO METROPOLITAN GOV’T, TOKYO CAP-AND-TRADE PROGRAM: JAPAN’S FIRST MANDATORY EMISSIONS TRADING SCHEME (Mar. 2010), https://www.kankyo.metro.tokyo.jp/en/attachement/Tokyo-cap_and_trade_program-march_2010_TMG.pdf; MASAHIRO KIMURA, TOKYO METROPOLITAN GOV’T-ENV’T, TOKYO: CAP AND TRADE PROGRAM: LESSONS LEARNED (June 10, 2010), https://unfccc.int/files/bodies/awg/application/pdf/07_tokyo_masahiro_kimura.pdf.

156. KIMURA, *supra* note 155, at 2.

157. *Japan: Carbon Pricing Experience*, *supra* note 148.

158. Semmler, *supra* note 21, at 25.

159. *Japan: Carbon Pricing Experience*, *supra* note 148.

160. Semmler, *supra* note 21, at 26.

161. *Id.* at 25.

162. *Id.* at 26 (“Mainly driven by former prime minister Naota Kan and Softbank’s CEO Masayoshi Son, Japan’s feed-in tariff is to be extended to geothermal, wind, small hydro and biogas in mid 2012.”).

163. Davies, *supra* note 5, at 1948.

the time.¹⁶⁴ Germany promoted itself as an economic and environmental leader.¹⁶⁵ However, the Fukushima NPP disaster ignited antinuclear sentiment in Germany to all-time highs, prompting Germany to immediately reverse its nuclear plans.¹⁶⁶ To do this, Germany announced that it would shut down all seven nuclear power plants constructed prior to 1980 with a desire to phase out all reactors by 2017.¹⁶⁷ In reality, Germany began “phas[ing] out its remaining ten reactors, so that after 2022 no nuclear power plant would operate in Germany.”¹⁶⁸ The revised policy raised concerns about additional greenhouse gas emissions; however, those concerns were quickly subdued when Germany approved licenses for expanding its renewable energy production.¹⁶⁹ Now, Germany’s renewable, hydro, and nuclear energy comprises twenty percent of its energy portfolio, which is nearly triple Japan’s seven percent and double China’s nine percent.¹⁷⁰ More importantly, Germany has met its energy demand, albeit with imported power from France and the Czech Republic, both heavy users of nuclear power.¹⁷¹ Additionally, there has been a wealth transfer from nuclear energy companies to renewable energy companies in Germany.¹⁷² Germany’s revised energy model has been hailed as an example of how a country can reduce its use of nuclear power *and* its emissions of greenhouse gases at the same time.¹⁷³

Given that success, Japan aims to mirror the energy model developed by Germany to make its renewable energy twenty percent to twenty-two percent of its energy portfolio by 2030.¹⁷⁴ In 2011, then-Prime Minister Yoshihiko Noda emphasized to the business community that renewable, not nuclear, power was the future when he pledged to reduce Japan’s reliance on nuclear power over time by closing all fifty of the

164. Semmler, *supra* note 21, at 16.

165. Davies, *supra* note 5, at 1948.

166. *Id.* at 1938–49.

167. YOUNG-DOO WANG ET AL., *supra* note 99.

168. Davies, *supra* note 5, at 1949.

The German decision was met with great domestic fanfare. Whereas a poll showed fifty-six percent of Germans opposing the extension of nuclear plants’ lives in 2010, the phaseout-by-2022 proposal rushed through the German legislature: eighty-five percent of parliamentarians supported the move, and the vote in the lower house was an overwhelming 513–79.

Id. at 1950.

169. YOUNG-DOO WANG ET AL., *supra* note 99, at 12–13; Davies, *supra* note 5, at 1963.

170. Semmler, *supra* note 21, at 8.

171. Davies, *supra* note 5, at 1951.

172. Serita & Xu, *supra* note 22, at 2–3.

173. Malcolm Foster, *Japan’s Greenhouse Gas Emissions Efforts Eroded by Fukushima Nuclear Disaster*, HUFFINGTON POST GREEN (July 4, 2012, 5:12 AM), http://www.huffingtonpost.com/2012/05/04/japan-greenhouse-gas-emissions_n_1476580.html.

174. The Kyushu Electric Power Company restarted its Sendai 1 reactor on August 11, 2015 and its Sendai 2 reactor on October 15, 2015. *Japan Nuclear Update*, NUCLEAR ENERGY INST., <http://www.nei.org/News-Media/News/Japan-Nuclear-Update> (last visited Feb. 8, 2016).

country's functioning reactors by around 2040.¹⁷⁵ However, unlike Germany, Japan cannot buy electricity from neighboring countries during periods of shortfalls or blackouts because Japan does not share power grids with any other country.¹⁷⁶ Therefore, Japan's use of Germany's energy model is limited and might not attain the same success.

3. *Creation of the Nuclear Regulatory Authority*

To comply with the Kyoto Protocol, Japan's Ministry of the Environment and the Ministry of the Economy, Trade, and Industry created the Nuclear Regulation Authority ("NRA") in September 2012.¹⁷⁷ The NRA is an "external organization of the Ministry of the Environment" responsible for overseeing the domestic nuclear power industry.¹⁷⁸ This new agency replaced a patchwork of bureaucrats who controlled the industry before the Fukushima NPP disaster and who were moving glacially to restart the idled reactors.¹⁷⁹ So far, the NRA has only deemed one of forty-eight reactors ready, though forty-three reactors are operable and potentially able to restart.¹⁸⁰ Twenty-four of these reactors are in the process of restart approvals.¹⁸¹ Additionally, the NRA has established new post-Fukushima NPP disaster technical standards for nuclear reactors.¹⁸² For example, the NRA has required upgrades of the remaining reactors to new industry standards even though it might cost more than \$12 billion, a sum the utilities companies have already pledged.¹⁸³

III. PROPOSAL

In leading to the shutdown of all nuclear power plants from 2011 to 2013, the Fukushima NPP disaster has exacerbated and created a new barrier to compliance with the Kyoto Protocol. Compared to other energy sources, nuclear energy produces up to thirty-six percent less CO₂ emissions.¹⁸⁴ In fact, nuclear power is capable of producing huge amounts of

175. *Id.*; Justin McCurry, *Japan's New Prime Minister Promises Ambitious Greenhouse Gas Cuts*, *GUARDIAN* (Sept. 7, 2009), <http://www.theguardian.com/environment/2009/sep/07/japan-greenhouse-gas-cuts>.

176. Foster, *supra* note 173.

177. NUCLEAR REGULATION AUTH., JAPAN, *NUCLEAR REGULATION FOR PEOPLE AND THE ENVIRONMENT* 3, https://www.nsr.go.jp/english/e_nra/nsr_leaflet_English.pdf (last visited Feb. 8, 2016).

178. *Id.*

179. Humber & Mogi, *supra* note 144, at 1.

180. *Id.*

181. *See Japan Nuclear Update*, *supra* note 174.

182. *Id.*

183. *Id.*

184. Nuclear power emits 73 million tonnes of CO₂ to generate 2518 TWh of electricity. To generate the same amount of electricity, natural gas would emit 1256 CO₂, oil would emit 1846 CO₂, coal would emit 2236 CO₂, and lignite would emit 2654 CO₂. *Greenhouse Gas Emissions Avoided*

energy with little or no carbon emissions.¹⁸⁵ This is because the processes of running a nuclear power plant generate no CO₂, but some CO₂ emissions arise from the construction of the plant, the mining of the uranium, the enrichment of the uranium, its conversion into nuclear fuel, its final disposal, and the final plant decommissioning.¹⁸⁶ For that reason, nuclear power is the best option to effectuate and comply with Japan's Kyoto Protocol reduced CO₂ emissions target.

If Japan reverts its plan to be antinuclear, Japan will have a much tougher time reducing emissions and meeting its reduced CO₂ emissions target. According to one study, “[w]ithout nuclear power, Japan is projected to produce an additional 180 million [to] 210 million tons of emissions” in one fiscal year as “compared to the base year of 1990, when emissions totaled 1.261 billion tons.”¹⁸⁷ This study is proof that a nuclear phase out would aggravate Japan's international energy portfolio by placing a greater importance on the import of fuel.¹⁸⁸ Moreover, Japan's domestic energy portfolio will be compromised.

With virtually no alternate source of energy that is as plentiful and cheap as nuclear power, Japan is economically, historically, and culturally handcuffed to nuclear power.¹⁸⁹ Former industry minister and current economic and fiscal policy minister Kaoru Yosano has stated that the “use of nuclear power [is] unavoidable to support the country's economy and its people's livelihoods.”¹⁹⁰ In light of this dependence, Japan continues to spend sixty-four percent of its 500 billion yen energy research and development budget on nuclear energy.¹⁹¹ Moreover, the government provides huge subsidies to power companies in the nuclear industry.¹⁹² In other words, the Japanese government has assumed the

Through Use of Nuclear Energy, WORLD NUCLEAR ASS'N, <http://www.world-nuclear.org/Nuclear-Basics/Greenhouse-gas-emissions-avoided/> (last visited Feb. 8, 2016).

185. RICHARD B. ALLEY ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, SUMMARY FOR POLICYMAKERS: A REPORT OF WORKING GROUP I OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (2007), <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf>.

186. *Life-Cycle Emissions Analyses*, NUCLEAR ENERGY INST., <http://www.nei.org/Issues-Policy/Protecting-the-Environment/Life-Cycle-Emissions-Analyses> (last visited Feb. 8, 2016).

187. Foster, *supra* note 173.

188. Belogolova, *supra* note 102.

189. *Id.*

190. *Japan's Nuclear Power Policy at a Crossroads*, *supra* note 140.

191. Belogolova, *supra* note 102; see also Hideyuki Ban, *Cost of Nuclear Power in Japan*, CITIZENS NUCLEAR INFO. CTR., <http://www.cnrc.jp/english/newsletter/nit113/nit113articles/nit113cost.html> (last visited Feb. 8, 2016) (“The Japanese government spends more than any other government on energy research and development. Nuclear energy receives 64% of this, by far the greatest portion. By comparison, only 8% is spent on renewable energy, while 12% is spent on energy efficiency etc . . . The government's nuclear energy budget hovers around 500 billion yen (\$4.5b). Private R&D investment (27 billion yen (\$247m) in 2003) is well below 10% of government spending on nuclear energy, so clearly the government has provided huge subsidies to the nuclear industry. Without these subsidies, the industry wouldn't have survived.”).

192. Belogolova, *supra* note 102; Ban, *supra* note 191.

cost of power plant risks and will not allow energy companies to become insolvent.¹⁹³ As a result, Japan has institutionalized corporate power plant initiatives ahead of government policy in an effort to privatize industry profits and socialize industry losses, and any reversal of this relationship would upset domestic energy policies.¹⁹⁴

While one nuclear power plant has restarted in August 2015, whether and when all nuclear power plants will come back online, and what that implies for Japan's long-term emissions trajectory is still to be determined.¹⁹⁵ Japan should be allowed to continue using CO₂ emitting power (and to withdraw from the Protocol) because it cannot turn to rely on nuclear power in light of shutdowns and political pushes toward nuclear reduction.

A. JAPAN WILL FAIL TO COMPLY WITH THE KYOTO PROTOCOL

Japan has not and cannot reduce its CO₂ emissions to 6% below its 1990 level as a result of energy portfolio changes that occurred due to the Fukushima NPP disaster. A couple of years before the Fukushima NPP disaster, the Japanese government proclaimed it was "on target to cut greenhouse gas emissions by an estimated average of 8% below 1990 levels, . . . meaning it [would] meet its commitments under the Kyoto Protocol."¹⁹⁶ At the same time, some reports expressed doubt when they clarified that Japan could "still barely meet its commitment under the Kyoto Protocol to reduce emissions during the five-year period through 2012 by an average of [6%] from 1990 levels."¹⁹⁷ For the reasons stated earlier, the Fukushima NPP disaster thwarted all projections and realities for Japan to meet its reduced CO₂ emissions targets. More recently, the Japanese government has admitted that it will produce, instead of reduce, more CO₂ emissions than it did in 1990.¹⁹⁸

According to the Japanese government's calculations, Japan will produce 15% to 16% more CO₂ emissions in 2020 than it did in 1990, reflecting a rise in non-nuclear power after the progressive and indefinite closure of all nuclear plants.¹⁹⁹ So far, Japan is on track to meet this horrifying projection. In 2013, Japan's CO₂ emissions rose 10.8% above its 1990 levels, making 2013 Japan's second highest emissions of CO₂ on

193. Semmler, *supra* note 21, at 22.

194. *Id.* at 22, 29.

195. Martin, *supra* note 16.

196. *Japan on Track to Meet Kyoto Carbon Emission Target*, CLIMATE GROUP (Oct. 10, 2012), <http://www.theclimategroup.org/what-we-do/news-and-blogs/japan-on-track-to-meet-kyoto-carbon-emission-target>; see also McCurry, *supra* note 175 (citing "8% cut unveiled by the outgoing government in June, at a UN meeting on climate change in New York this month").

197. Foster, *supra* note 173.

198. This projection also raises doubts about whether Japan will be able to meet its 2009 Copenhagen pledge to slash emissions by twenty-five percent from 1990 levels by 2020. *Id.*

199. *Id.*

record.²⁰⁰ Moreover, “[p]reliminary data in December had shown the emissions were a record high in . . . 2014.”²⁰¹ Accordingly, with a definitive plan to bring nuclear power back into Japan’s domestic energy portfolio, Japan has and will continue to leave a lasting carbon footprint in the wake of the Fukushima NPP disaster, and therefore fail to meet its reduced CO₂ emissions target.

B. JAPAN SHOULD BE EXCUSED FROM KYOTO PROTOCOL OBLIGATIONS

This Note argues that the Fukushima NPP disaster was an event of force majeure. Force majeure is a legal principle, provided for either by contract or imposed on parties by law or the courts. As stated earlier, this principle excuses, or partially excuses, one or both parties to a contract from performing contractual obligations in certain specified circumstances.²⁰² Rather than excuse a party that could have avoided its failure to perform through commercially reasonable means, force majeure excuses a party from performance obligations or liability if some unforeseen event beyond the control of that party prevents it from performing its contractual obligations.²⁰³ Aligned with this latter definition, the Kyoto Protocol states that a “Force Majeure Event” means “any event beyond the reasonable control of the person affected including, without limitation, labor dispute, act of God, war, act or circumstance of terrorism, riot, civil commotion, malicious damage, accident, breakdown of essential computer software, hardware or system failure, fire, flood and/or storm and other unforeseen circumstances materially and adversely affecting the performance” of the country.²⁰⁴ When a force majeure event causes noncompliance, “for so long as the circumstances continue, [the country] shall be relieved of its obligations under the Terms and Conditions which it has been prevented from fulfilling as a result of that Force Majeure Event without liability.”²⁰⁵ Of course, the obliged country must still “take all reasonable and practical steps to minimize any loss and/or disruption resulting from any such Force Majeure Event.”²⁰⁶ The impact of an “act of God” depends on the size and composition of the affected party, and can lead to complete noncompliance, thereby excusing a party from its obligations.²⁰⁷

200. Osamu Tsukimori, *Japan Sets 26 Percent Cut in Greenhouse Gas Emissions as Target*, REUTERS (July 17, 2015, 12:19 AM), <http://www.reuters.com/article/2015/07/17/us-japan-carbon-idUSKCN0PR0A220150717>.

201. Osamu Tsukimori, *Japan’s CO₂ Emissions Hit Second-Highest on Record*, REUTERS (Apr. 14, 2015), <http://www.reuters.com/article/2015/04/14/us-carbon-japan-idUSKBN0N50BJ20150414>.

202. *Force Majeure Clause*, BLACK’S LAW DICTIONARY (10th ed. 2014).

203. *See id.*

204. UNFCCC Lima Report, *supra* note 61, at 6.

205. *Id.*

206. *Id.*

207. *Id.*

Here, force majeure could be applied to excuse Japan, a party to the Kyoto Protocol ratified in 2002, from its CO₂ emissions reduction requirements in light of the Fukushima NPP disaster. Specifically, this Note argues that the earthquake and tsunami were “acts of God,” as contemplated by force majeure; that those “acts of God” led to the destruction of the Fukushima NPP and the dismantling of nuclear power in Japan; that these events were unforeseen and beyond the control of Japan; and that the events will prevent Japan from performing its Kyoto Protocol obligations.²⁰⁸

C. JAPAN CAN SUCCESSFULLY ARGUE FORCE MAJEURE

In order to evoke force majeure, a party must be excused by the supervising party when four factors have been met: (1) adequate notice of the event has been given; (2) performance is not otherwise possible; (3) the duration of time of the force majeure events renders performance impossible or insurmountable such that one or both of the contracting parties might find performance unsatisfactory and prefer some alternative arrangement; and (4) allocation of performance is not fair and not reasonable.²⁰⁹

Here, adequate notice has, arguably, sufficiently been given. Because the Fukushima NPP disaster occurred just one year prior to the Kyoto Protocol target deadline and the Fukushima NPP disaster was well-publicized throughout the world, then the UNFCCC was given sufficient notice of the Fukushima NPP. In the alternative, Japan can and should now evoke force majeure to the UNFCCC so as to give explicit notice of the economic, environmental, and political consequences the Fukushima NPP disaster created that has and will continue to cause Japan to not comply with its Kyoto Protocol obligations. Although it may be argued that Japan is exploiting the Fukushima NPP disaster to avoid unattainable Kyoto Protocol obligation, Japan would have legal grounds to claim force majeure.

Second, performance is not otherwise possible for Japan. Currently, all but one of the forty-eight reactors have been shut down since the Fukushima NPP disaster—forty-three reactors are operable and potentially able to restart, and twenty-four of these are in the process of restart approvals.²¹⁰ While Prime Minister Abe champions for nuclear power plants, various district courts in Japan have blocked his efforts by upholding an injunction banning the restart of local nuclear reactors. Such was the case in Fukui where the court “dismissed” a “motion for a stay on an earlier decision to temporarily bar the restart of the No. 3 and

²⁰⁸. *Id.*

²⁰⁹. UCC § 2-615 (AM. LAW INST. & UNIF. LAW COMM'N 2012).

²¹⁰. *Japan Nuclear Update*, *supra* note 174.

No. 4 reactors at plant in Takahama.”²¹¹ The court reasoned that nuclear power plants were not safe to reopen at that time.²¹² Nuclear power plants might be safe to reopen once the government has fully developed an energy portfolio with sufficient safeguards. To date, the 2014 Strategic Energy Plan addresses such concerns, but lacks public support.²¹³ Moreover, Japan lacks minerals and energy domestically to serve as alternatives. As a result of this geographic and commodity vulnerability, Japan is dependent on its substantial international energy portfolio that “imports about 84% of its energy requirements” absent its ability to produce nuclear energy domestically.²¹⁴ Simply put, performance is not otherwise possible for Japan.

Third, there is great uncertainty and disagreement within the Japanese government as to how long the period of nuclear power plant suspension should and will be. Given the previously discussed barriers to compliance, the delay in performance resulting from the Fukushima NPP disaster and subsequent nuclear power shut downs has proven to be quite lengthy and indefinite. Accordingly, the short- and long-term consequences are still being realized. Therefore, such a drawn out force majeure event should render Japan’s performance impossible or insurmountable, and thus Japan should be excused under force majeure.

In accordance with the enforcement branch’s compliance mechanism, Japan might be able to cover its deficit in the second commitment period ending in 2020.²¹⁵ However, Japan might not be able to fully comply with that mechanism because it also requires Japan to reduce its CO₂ emissions another 30% of that deficit, in addition to whatever its commitment would be for that period.²¹⁶ In total, Japan would have to reduce its CO₂ emissions to 32.8% below 1990 levels by 2020.²¹⁷ Such an allocation of performance is not fair and reasonable because Japan might be unable to fairly and reasonably allocate its carbon credits to meet its Kyoto Protocol targets by 2020. Under the Kyoto Protocol, Japan can use three mechanisms that allow it and private companies to buy, generate, or trade emissions credits. These credits then count toward

211. *Japan Court Upholds Nuclear Power Plant Injunction*, PHYS.ORG (May 19, 2015), <http://phys.org/news/2015-05-japan-court-nuclear-power-injunction.html>.

212. *Id.*

213. *Cabinet Decision on the New Strategic Energy Plan*, *supra* note 113.

214. *Nuclear Power in Japan*, *supra* note 110.

215. LEGAL RESPONSE INITIATIVE, KYOTO COMPLIANCE MECHANISM ¶ 5 (July 19, 2010), <http://legalresponseinitiative.org/wp-content/uploads/2013/04/BP12E-Briefing-Paper-Kyoto-Compliance-Mechanism-19-July-2010.pdf>.

216. *Id.*

217. Initially, Japan was obliged to reduce their CO₂ emission levels to 6% of their 1990 levels. Adding 30% of 6% (1.8%), totals 7.8%. Then, because in 2010 Japan imposed upon themselves a 25% reduction target for 2020, Japan’s total CO₂ emission target is 32.8% below 1990 levels, in accordance with the enforcement branch’s deferred- compliance mechanism. Hiroko Tabuchi, *Quake in Japan Causes Costly Shift to Fossil Fuels*, N.Y. TIMES, Aug. 20, 2011, at B2.

Japan's reduction target. While normally this option would be exercised, Japan was close to meeting its target in 2010 until the Fukushima NPP disaster occurred just one year prior to the Kyoto target deadline. Accordingly, Japan's government appropriately focused its energy toward the safety of its people and on addressing the issues that had led to the Fukushima NPP disaster, rather than the consequences of missing its Kyoto targets. Therefore, it would not have been fair or reasonable for the Japanese government to spend time, energy, and resources on obtaining emissions credits under the various mechanisms. Moreover, it is neither industry custom nor the practice of the government to put environmental issues before human lives and reacting to a nuclear power plant disaster. Accordingly, the Fukushima NPP disaster was a legitimate reason for Japan to allocate its efforts away from meeting its Kyoto targets. Compliance with the Kyoto Protocol is not and cannot be a priority of the Japanese government following the Fukushima NPP disaster.

One inevitable consequence of the Fukushima NPP disaster not being a priority of the Japanese government is that it will not comply with the Kyoto Protocol. Japan has focused on diversifying its energy portfolio to safely meet current power needs rather than addressing its Kyoto targets. While this might seem like an act of intentional noncompliance, this Note argues that such an act is of inadvertence. No behavior of Japan contributed to the earthquake, tsunami, and nuclear power plant destruction that simultaneously occurred. In fact, but for the Fukushima NPP disaster, the Japanese government and TEPCO would have honored various supply agreements, purchase orders, joint venture agreements, and many other contractual relationships it had with consumers, suppliers, and employees. Now, Japan is simply not able to do so. By evoking force majeure to free itself from Kyoto Protocol obligations, Japan might also free itself from like treaties and agreements that imposed similar obligations that it is no longer able to comply with due to the Fukushima NPP disaster. In doing so, Japan could avoid any and all penalties for noncompliance with the Kyoto Protocol. Such a decision is valid under Article 27(2) of the Kyoto Protocol, which permits countries to withdraw within "one year from the date of . . . notification of withdrawal."²¹⁸

218. Kyoto Protocol, *supra* note 25, art. 27; see also *Status of Ratification of Kyoto Protocol*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/background/items/6603.php (last visited Feb. 8, 2016).

CONCLUSION

Japan's carbon emissions reduction targets established by the Kyoto Protocol have been frustrated by the unanticipated events of the Fukushima NPP disaster. As no country has ever experienced an earthquake, tsunami, and nuclear power plant disaster collectively on one single day,²¹⁹ the events constitute unforeseen "acts of God" of a magnitude sufficient to excuse Japan from its contractual obligations under the Kyoto Protocol. Therefore, because these were force majeure events, Japan should not be penalized for failing to meet its Kyoto Protocol carbon emissions reduction targets or from withdrawing from the agreement as it continues to restructure its energy portfolio to meet its people's needs in the wake of the Fukushima NPP disaster.

219. Serita & Xu, *supra* note 22, at 1.
