

Fukushima policy fallout

A case study of the change in energy policy in Japan after the Fukushima accident.

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Abstract

Nuclear power became a controversial issue in Japan after the Fukushima accident in March 2011. The accident spurred a drastic change in nuclear policy in Germany, while Japan's reaction was surprisingly less dramatic. This thesis seeks to answer the question; why have we not seen a drastic change in Japanese nuclear energy policy since the Fukushima accident? To answer the research question, this thesis will make use of focusing events theory and framing theory. Both used widely within the field of political science, focusing events theory can be applied to explain how significant shocks and events often lead to drastic policy change within a country, while framing theory helps defining the actors and policy entrepreneurs involved in deciding how an issue is being presented, and perceived as by the public. Focusing events theory would suggest that the Fukushima accident would work as a catalyst for policy change, however, that is not the case in Japan. By also utilizing framing theory, this thesis is able to explain why and how this did not happen. Analyzing the Basic Energy Plan revisions from both before and after the Fukushima accident, we are able to trace the changes within Japan's energy policy, and the way nuclear energy is, and has been presented to the public by the Japanese government. This thesis concludes that the framing of nuclear power as a method to reach energy self-sufficiency has, and is, extremely strong within the Japanese government and industry, making it very difficult to shake or attempt changed.

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List of Abbreviations

ATR	Advanced thermal reactor		
DP	Democratic Party	2016-2018	民進党
DPJ	Democratic Party of Japan	1998-2016	民主党
DPP	Democratic Party of the People	2018-present	国民民主党
FBR	Fast breeder reactor		
IAE	International Energy Agency		
JAEC	The Japan Atomic Energy Commission		原子力委員会
JAERI	Japan Atomic Energy Research Institute		日本原子力研究所
JAPCO	Japan Atomic Power Company		日本原子力発電
JCO	Japan Nuclear Fuel Conversion Co.		日本核燃料コンバージョン
KEPCO	Kansai Electric Power Company		関西電力株式会社
LDP	Liberal Democratic Party		自由民主党
LWR	Light-water reactor		
METI	Ministry of Economy, Trade and Industry	2001-present	経済産業省
MITI	Ministry of International Trade and Industry	1949-2001	通商産業省
OECD	Organization for Economic Co-operation and Development		
TEPCO	Tokyo Electric Power Company		東京電力ホールディングス株式会社

1 Introduction

Nuclear power became a controversial issue in Japan after the Fukushima accident in March 2011. The Great Eastern Earthquake, measuring 7.1 on the Richter's scale, sent the largest tsunami recorded in modern time towards the east coast of Japan, slamming into the salt-water pumps at the Fukushima Daichi and Daini nuclear power plants at a height of 12 meters. As a result, the power plants' cooling systems malfunctioned and caused a meltdown of the cores in a few reactors. Over 200 000 people had to evacuate the surrounding areas, many having lost their homes and livelihoods in just a few hours. The incredibly traumatic event was broadcast around the world, sparking a call of humanitarian aid and support, but also a discussion on the safety of nuclear power plants. The accident spurred a drastic change in nuclear policy in Germany, while Japan's reaction was surprisingly less dramatic. This thesis seeks to answer the question; *why have we not seen a drastic change in Japanese nuclear energy policy since the Fukushima accident?* As the only country in the world to have experienced nuclear bombings of two of its cities, and the worst nuclear reactor accident in the world, it is surprising that Japan is moving steadily onwards with nuclear power and nuclear technology. Japan has experienced strong protests against nuclear power since the accident, and the only political party seeking to decommission all nuclear power plants in Japan after the accident was voted out of power, and replaced by the Liberal Democratic Party, effectively protecting the status quo.

This introductory chapter will introduce the ways in which this thesis is placed within political science research. It will also give a brief introduction to the Fukushima accident and nuclear policy in Japan, which will be further explored in Chapter 2. This introductory chapter will also give a review of existing literature relevant to this thesis, providing the necessary building blocks for the research, but also discuss how this thesis differs from existing literature. Lastly, this chapter will provide an overview of the following chapters, outlining the contents presented in each chapter of this thesis.

1.1 Positioning this thesis within political science research

To answer the research question, I will make use of focusing events theory and framing theory. Both used widely within the field of political science, focusing events theory can be applied to explain how significant shocks and events often lead to drastic policy change within a country, while framing theory helps defining the actors and policy entrepreneurs

involved in deciding how an issue is being presented, and perceived as by the public. These theories both have a long tradition within the field of political science research and have not yet been applied together when looking at the Fukushima accident and the evolution of energy policy in Japan. By defining the Fukushima accident as a case of a focusing event, this thesis hopes to shed light on the processes behind energy policymaking between 2010 and 2018, using the publicly available policy reports called Basic Energy Plans from 2010, 2014 and 2018 as reference points and the basis of analysis.

1.2 An introduction to the Fukushima accident

The Fukushima accident instigated the shutdown of most of Japan's nuclear power plants, which in turn resulted in Japan's energy self-sufficiency rate falling from 20.2 % in 2010 to 11.5 % in 2011 (Zhihai 2019). Despite Japan cutting down on its oil dependency since the oil crisis in 1973, Japan's fossil fuel dependency is significantly higher than that of other developed countries (Zhihai 2019). Japan got its very first nuclear reactor in 1965, and nuclear power has been an important component of Japan's energy mix since then. An island with few natural resources, several Japanese governments have stressed the importance of energy self-sufficiency, in order to render Japan more resilient against international economic crises and other external factors. Nuclear power production was promoted during the oil crisis of the 1970s as a way for Japan to be less dependent on oil (Kishimoto 2017). Despite this, in 2016, fossil fuels accounted for 89% of the energy mix in Japan, which makes Japan very vulnerable to another oil crisis. Higher energy prices mean higher cost for electricity both for households and industry, negatively impacting the economic system in Japan (Zhihai 2019). Furthermore, Japan was the 5th largest emitter of greenhouse gases stemming from oil in 2017, and the overall 6th largest emitter of greenhouse gases overall, according to the Global Carbon Atlas (n.d.).

The Fukushima accident sparked reactions both in Japan and other parts of the world. Most notably is probably Germany, where it was decided to phase out all nuclear power production. Despite being so far away geographically, Germany reacted swiftly and put effort and money into renewable energy projects to make up for the lack of power production from nuclear power plants. In early 2012, Japanese Prime Minister at that time, Yoshihiko Noda, announced that Japan would also attempt to phase out nuclear power production completely by 2040. However, recently retired Prime Minister Shinzo Abe (PM since end of 2012 until

September 2020) argued that Japan needs nuclear power and overturned the phase-out decision upon resuming office (Suzuki 2017). Despite surveys showing that the public is largely opposed to the continuation of nuclear power after the Fukushima accident (Hirose 2013), the government led by Shinzo Abe and the Liberal Democratic Party seem to be set on the path of nuclear power production.

The Ministry of Economy, Trade and Industry (METI) has held a steady course when it comes to the promotion of nuclear power, despite the Fukushima accident and the extreme reactions in other nuclear power nations. In a report from 2015, the Ministry announced that their priority is to ensure better safety when it comes to energy production (METI 2015), suggesting that nuclear power will continue to be a part of the energy equation in Japan. Their goal was, according to the report, that Japan's energy self-sufficiency rate should be 24.3 % by 2030, and that CO₂ emissions from energy sources should be 21.9 % lower than the total greenhouse gas emissions on the 2013 level (METI 2015). Every four years, METI revisits Japan's energy policy and future goals in what is called the Basic Energy Strategy. The last published report is from 2018, and it holds fast that Japan will not phase out nuclear power despite much opposition among the public.

Nevertheless, the shock of the Fukushima accident forced a re-evaluation of nuclear power as a safe and viable source of "clean" energy. Japan has faced domestic unrest due to accidents impacting local and regional environment before, such as toxic leaks from mines. Perhaps most famous is the "itai-itai disease", caused by a mercury leak from a copper mine along the Jinzu River in the early 1920s, the Minamata disease, also caused by mercury poisoning in the 1950s, and Yokkaichi asthma, caused by sulfur dioxide leaks in the 1960s (Schreurs 2012). Furthermore, for the international audience, an appropriate response to the Fukushima accident was necessary to maintain respect and trust. Feldhoff argues that changing the focus from something that resulted from a natural disaster to something that resulted from human error could be a useful tactic for the pro-nuclear government to shift the focus towards the need for better adherence to safety measures, rather than the risk factor of nuclear reactors (2018). This human error framing is very interesting to keep in mind when looking at the changes that has occurred in nuclear policy in Japan since 2010 and is a framing that is not as prevalent in other nuclear nations, like for example Germany. Laying the blame on human errors also implicates TEPCO, the company which owns and ran the Fukushima nuclear

power plants. TEPCO came under heavy investigation immediately after the accident and gained a lot of attention in media for their handling of the accident.

1.3 Placing this thesis within existing literature

The literature written on nuclear power in Japan is generally split into four strands of literature; domestic policy, international policy, public opinion and social justice, the demand for a climate neutral society, as well as how the Fukushima accident has impacted the Japanese policy on nuclear energy. As this thesis is concerned with the impact of Fukushima on policy change, this literature review will touch lightly upon the main perspectives to get a holistic overview of Japan as a nuclear nation, but will focus most on the policy change aspect, and literature concerned with public administration and government publications. It will also show the gaps in existing research which this thesis seeks to fill.

Domestic policy

Literature on domestic policy focus on Japan's vulnerability as an island nation, and explains the development in energy policy from that perspective. Historically, Japan has always been vulnerable to outside forces due to its low reserve of natural resources. Geopolitically, Japan has long pursued control in Southeast Asia to secure access to resources, such as energy and raw materials for industry. Existing research on Japanese domestic policy often point to the strong ties between the energy production companies and the policy makers in Japan, as well as Japan's dependency on imported oil and other energy (Morse 1991). In the literature on domestic relations and energy policy, the relationship between the government and industry is often quoted as very strong, even using the term "iron triangle" to illustrate just how strong the connections between public and private actors in Japanese energy sector. The LDP's ties to powerful companies are so strong that the two are almost inseparable, and so are the connections between the industry and MITI. Dauvergne (1993) goes as far as to state that "groups outside of this tripartite coalition [LDP, MITI and powerful companies] have virtually no impact on energy market outcomes" (pp. 576).

This kind of literature is a significant part of literature on Japanese domestic policy in the last 30 years and focuses almost exclusively on the leading party's ties to energy producers and other industry, quoting it as the main driver for Japan's strong conviction of nuclear power as an important factor for energy self-sufficiency. This thesis builds upon this literature in the

sense that it acknowledges the strong evidence for close relationships between the LDP, METI and the industry, as this is a very useful building block to further research on domestic policy in Japan.

International policy perspectives

Older contributions to the literature on Japanese nuclear policy tends to lean towards an international policy perspective, discussing the possibilities and potential dangers following Japan's move towards nuclear power. With much literature being written at the height of the Cold War, it is understandable that Japan's investments in nuclear technology sparked an interest among researchers in North America and Europe. Reflecting the global situation of their publications, literature from the Cold War era suggests a concern that Japan's investment in nuclear technology could allow Japan to dabble in nuclear weapons, which in turn could lead to international distrust (Gale 1978). However, while perceived as an international concern, it is also acknowledged that nuclear power is considered a matter of national security in Japan, in relation to energy needs and self-sufficiency, compared to other countries that may not be so dependent on foreign energy production. The Cold War mentality is present in much of the literature on Japanese nuclear energy policy pre-1990, and there is a stark contrast between the concerns of that time and the current state of the global society. This literature is therefore of less importance in relation to this thesis, considering the fear of Japan rising up as a nuclear weapons country is minimal, and not of importance in the case of its domestic nuclear energy policy.

Social justice literature

Much of recent literature on nuclear power in Japan focuses on social justice following the Fukushima accident, as well as other accidents caused in mines and similar facilities. In an article on public opinion on nuclear power in Japan, Brooks (2012) quotes environmental anthropologist Keibo Owa at Meiji Gakuin University, saying the Japanese people have no power, and that Japan is no longer a democracy in practice. Brooks states that public discussions on nuclear power only appear now and then, and often through other channels than mainstream media. They explain that "tragic events like Fukushima can act as pivotal wake-up calls, but effective change requires a certain level of sustained public participation in the debate around nuclear power" (pp. 137).

It is often a concern in this kind of literature that crises and nuclear accidents are glazed over, lulling the public into a false sense of safety in-between accidents. Some authors argue that there is too little focus on the human aspect of these accidents, and too much focus on technological challenges and faults (Brooks 2012). It has also been argued that rather than seeing nuclear catastrophes as interconnected through politics and culture, they are seen as isolated events, which prevents any collective action to avoid such events (Brooks 2012).

Similarly, there is much literature outlining the anti-nuclear movement, drawing comparisons between Japan and other nuclear power nations such as Germany and the US. This literature focuses more on the human sacrifice of nuclear power plant construction, and the victims of nuclear facility accidents, while also discussing the risk factor of new constructions, natural disasters and human errors (Kondoh 2009; Beck 1992).

Since this thesis seeks to explain the lack of change in policy following nuclear accidents like the one in Fukushima, it builds in part on literature on the social justice movements across Japan. It does not seek to provide a moral judgement on nuclear power and the energy policy on Japan, but rather regards the anti-nuclear movement as what could be an important piece on the chessboard of domestic policy decisions in Japan. The existing literature does, however, note how little power social justice movements actually have in Japan, considering the little impact the anti-nuclear movement has achieved in terms of nuclear power production. This thesis will shed more light on the processes behind policy change in Japan, using framing theory to explain why the nuclear policy has not changed much, despite the social justice movement following the Fukushima accident.

Climate change literature

Climate change prevention is a cause that is given much credit when it comes to Japan's desire to move away from fossil fuels and toward green energy, with nuclear power being portrayed as a necessary step to an economy without fossil fuels. Nuclear power policy in Japan is often discussed in relation to climate change and the Kyoto Protocol in the literature. The pros and cons of nuclear power in relation to carbon neutrality is weighed against other solutions and options, and much of the literature discusses the methods in which Japan seeks to meet its climate goals for 2030 and the former periods following the Kyoto Protocol. There are varying opinions on the place of nuclear power policy within green energy, some pointing

to the environmental risk involved in the case of an accident, as well as questions relating to dangerous nuclear waste. Other literature suggests that even if nuclear power is the solution to a carbon-neutral Japan, it is unlikely to lead to a greener lifestyle in general, because the promotion of nuclear energy does nothing to reduce the general demand for energy (Kondoh 2009). Some literature also highlights that all nuclear power plants in Japan are owned by private companies, while the promotion of nuclear power as a desirable energy source has been conveyed as a national project. The economic viability of nuclear power production without government subsidies is another point being raised within the literature.

Moreover, there is some literature discussing Japan's goal setting in relation to international climate agreements like the Kyoto Protocol and the Paris Accords. This literature tends to review Japan's commitments, the viability of these, and likelihood of Japan succeeding in reaching these goals. Iguchi and Andersen (2017) point a critical finger at Japan, arguing it unlikely that Japan will reach its ambitious goals.

It is natural to take into account existing literature on environmental issues in Japan when considering the current energy policy. After all, the Ministry of the Environment and METI share close ties due to the connection between climate change and the generation and use of energy. This thesis does not seek to judge whether the use of nuclear power is right or wrong in terms of climate, nor in terms of economy, and positions itself outside of climate literature, while at the same time taking it into great consideration.

Literature on the Fukushima accident

A significant amount of literature has been written regarding the Fukushima accident in the past decade, however a common denominator is that an overwhelming amount of the literature was written in the period right after the accident. Literature speculating in the future of nuclear power in Japan written in 2012 gives interesting insight into what scholars predicted for Japanese policy and what the political landscape looked like in the wake of the accident (Shadrina 2012). Some scholars foresaw a nuclear-free Japan (Kawasaki 2013), expecting Japan to follow at least somewhat in the footsteps of Germany, which reacted to the Fukushima accident by phasing out nuclear power swiftly and immediately (Schreurs 2013). This thesis positions itself within the Fukushima literature, as it explores the degree of policy change in the wake of the Fukushima accident. Rather than predicting an outcome based on experiences in other nuclear nations, or expectations rooted in the deep connections

like the “iron triangle”, this thesis seeks to explore the degree to which the Fukushima accident can be categorized as an exogenous shock following the theoretical criteria, as well as how the framing of nuclear energy has developed and changed since the accident.

1.4 Structure of this thesis

This thesis is divided into the following chapters: Chapter 2 will tell the history of nuclear power in Japan, explaining the strong ties between nuclear power and Japan’s energy security and identity as a self-sufficient nation in Asia. It will give an introduction to the Basic Energy Plan and the subsequent revisions from 2007, 2010, 2014 and 2018, which will be of analytical importance, and will also explain the current state of Japanese nuclear energy policy. Chapter 3 will discuss the theories of framing and focusing events, which are guiding this thesis in answering the research question stated above. This chapter will also outline the expectations I have to the case study based on the theoretical framework. Chapter 4 will discuss the single case study methods used in this research, and present the methodological framework built on document analysis and case study methods, as well as give insight into the data collection process. Chapter 5 will examine the evidence found in order to explain the lack of drastic change in nuclear power policy in Japan. It will give a detailed description of the data found and discuss the findings. Lastly, chapter 6 will provide a summary and conclusion on the issue.

1.5 Conclusion

This introductory chapter presents the research question guiding this thesis, as well as the theoretical framework guiding the research. It gives a brief overview of the Fukushima accident and the energy policy in Japan today, which is expanded on in the following chapter. It also places this thesis among the existing literature on Japan and Japanese policymaking through a review of existing literature, paying attention to literature on both domestic and international policy, environmental and social justice literature, and literature specifically on Fukushima and nuclear power in Japan. Lastly, it presents the structure of the thesis, giving an explanation of how the text is built, as well as introducing the chapters and their contents.

2 Japan's nuclear energy history

This section will provide an overview of the history of nuclear energy in Japan from its implementation and until today, to explain the steps Japan has taken to arrive at its current energy policy. Japan has long been one of the largest greenhouse gas emitters in the world (Watanabe 2014; Davidovic n.d.). Iguchi, Luta and Andresen (2015; 128) note that Japan's environmental policy is heavily influenced by the energy policy, as energy security has long been one of Japan's biggest priorities. Being an island with a large population and few natural resources, the Japanese government has long strived for energy security to make sure a repeat of the oil crises in 1970s does not occur. Focusing on Japan's nuclear policy, specifically between 2010 and 2020, I hope to shed light on how the policy on nuclear energy in Japan has developed, and whether or not the Fukushima accident has had a significant impact on the country's energy policy. This chapter will show how Japanese nuclear energy has moved from strictly an issue of economics and self-sufficiency, towards a policy which also includes problem-solving related to climate issues in addition to self-sufficiency and economic independence issues.

It is important to take into consideration the full history of nuclear power in Japan to fully understand the process in which the government has promoted nuclear power to the public as a necessary industry, as well as better understand the close ties between the government, METI and the nuclear industry actors. Although many important events will be touched upon in this chapter, the most important events it will focus on is the birth of nuclear power in Japan in 1954, followed by the oil shock of 1973, which spurred on the perceived need of a fully self-sufficient Japan, less dependent on foreign energy imports. Following this, the climate agreements in the 1990s are the next important events this chapter will present, as the increased attention to climate change gave Japan a golden opportunity to further its goal of a self-sufficient energy supply chain, with nuclear power as an important ingredient. This period of heightened attention to climate change brought the introduction of The Basic Act on Energy Policy, the law and subsequent revisions (Basic Energy Plans) this thesis heavily relies on for analysis. As the Basic Energy Plans were brought into existence less than a decade before the Fukushima accident, they provide excellent insight into the energy policy pre- and post-Fukushima. A large section of this chapter will be dedicated to the Fukushima accident and the period after. It will also give insight into the current Japanese energy policy, as well as the current state of Japan's energy mix and self-sufficiency ratio.

2.1 History of nuclear energy in Japan 1954-2010

The electric power industry in Japan has always been private, since the beginning of electricity generation in Japan in 1882, and the government did not impose control over the industry until right before World War II (Shadrina 2012). Nuclear power is also dominated by private actors, and has been from the very beginning, although heavily encouraged by the Japanese government. Nuclear power has long been a part of Japan's move towards energy self-sufficiency and independence. Since the 1970s, the Japanese government has worked towards an energy mix that is less dependent on imported fossil fuels, and more dependent on domestic production of energy. Since the 1990s, climate change has also been a powerful justification for Japan's investment in nuclear technology and energy production.

Japan's nuclear power program was inaugurated in March 1954, when the Diet passed the very first nuclear energy budget. Following this, the Basic Atomic Energy Law was enacted in 1955, suggesting an independent, civilian, and open-to-the-public nuclear power program (Lowinger 1990). A couple of years later, in 1957, JAEC (the Japan Atomic Energy Commission) recommends that Japan should acquire its first nuclear reactor, and that it be a 166-megawatt electric MWe British Calder-Hall gas-cooled reactor. The construction of this reactor begins in 1960 and is completed around the middle of 1965 (Lowinger 1960).

The United States was an encouraging supporter of Japan's nuclear power development from the beginning and saw economic benefits for itself as well. After the successful construction of Japan's first nuclear reactor in 1965, the US promised it would provide a steady flow of uranium to Japan if they built General Electric reactors. JAPCO (the Japan Atomic Power Company) ordered a GE designed boiling-water reactor in 1965, which would become Japan's second nuclear reactor (Lowinger 1990). Following the first developments in nuclear technology, it did not take long for other electricity producing companies to follow suit; KEPCO (Kansai Electric Power Company) completed their first Westinghouse reactor in 1970, and TEPCO (Tokyo Electric Power Company) their first GE reactor in 1971. By the end of 1972, Japan had ordered a total of 12 boiling-water reactors, as well as 9 PWR pressurized water reactors (Lowinger 1990).

Some scholars, such as Roger W. Gale (1978) shows that there were certain concerns that nuclear technology could also allow Japan to dabble in nuclear weapons, which in turn could lead to international distrust. Editorials in the newspapers Mainichi Shinbun and Asahi Shinbun at the time show that Japan saw energy self-sufficiency as a way to strengthen their position to negotiate with other countries in the future, with Kishida Junnosuke, expert on nuclear technology, going as far as to say it would be Japan's only cards when bargaining with other nuclear nations, among them the US (Gale 1978). It is clear that this thinking is fueled by concerns born from the Cold War mentality. In 1978, the US was terrified other countries would create atomic bombs. Gale describes the risks of Japan importing and re-using uranium, and claims that Japan's "nuclear allergy", sparked by the bombing of Hiroshima and Nagasaki, should not be seen as a guarantee that Japan will not develop nuclear bomb technology. He also states that there is no proof that Japan's non-nuclear weapon policy would be changing at the time. This concern did not, however, dissuade the US from investing in Japanese nuclear energy, and was a detrimental help to the Japanese development of nuclear technology.

The oil shock of 1973 strengthened the Japanese government's trust in nuclear energy; the oil crisis sparked new faith in nuclear power as the best solution for Japan to secure its energy safety, especially among the government officials. The oil shock negatively affected Japan in many ways, such as inflation and trade deficit, as well as an economic recession (Mihut and Daniel 2012). The energy consumption per unit of GDP fell at an annual rate of 1.9% between 1973 and 1979, further showing the negative impact the oil shock had on Japanese economy (Lowinger 1990). Following the oil shock, the *law for the Adjustment of Areas Adjacent to Power Generating Facilities* was adopted in 1974 (Kondoh 2009). This law was an exceptionally significant piece of legislation for achieving the goal of expanding nuclear power production. The law provided financial support for local governments that accepted new plants to be built within their areas. The law let tax money from nuclear energy consumption to be put back into local infrastructures such as roads, hospitals, libraries, and so on (Kondoh 2009).

In 1975, the Diet passed *the Petroleum Stockpiling Law*, in an effort to avoid the negative impacts of the oil shock of 1973 in the future, and to attain energy security. Building on this law, the oil stockpiling program, which JNOC (Japan National Oil Corporation) is

responsible for, provides financial incentives to stockpile oil (Lowinger 1990). The oil shock worked as a strengthener of Japan's need for increased energy security.

The Ministry of International Trade and Industry (MITI) began the Improvement and Standardization Program as a response to problems with the LWR technology experienced by power companies. The first stage ran from 1975 to 1977, the second from 1978 to 1980, and the third from 1981 to 1985. The second stage saw an improvement in components and systems used in nuclear power plants. The average plant capacity factor rose with 15 % during the 1982-1983 period, from 55% in 1979 to 70 % in 1983 (Lowinger 1990). Japanese nuclear history is by far a perfect image of safe and problem-free energy production; In 1978, there is a malfunction in the very same reactor that suffered a meltdown in the Fukushima accident of 2011. 11 years later, in 1989, the water-cooling system breaks down in the Fukushima nuclear power plant, which resulted in nuclear particles being spilled into the atmosphere (Lowinger 1990).

Japan saw a surge in its economy in the 1980s, and this period is widely considered a "golden age" for Japanese economy. It is therefore not so strange that there is less written about nuclear power and concerns in this decade, considering this was the period when Japan thrived the most. New technological advances, increased wealth and standard of living, as well as an optimistic view of the future meant a more optimistic view of nuclear power as well. No major crisis emerged until 1990. In 1990, Japan had 38 commercial nuclear power plants in operation, with a combined capacity of 30,380 mWe, which accounted for around 17% of Japan's total electric capacity. The year 1990 also saw the event of the Gulf Crisis, further showing Japan's vulnerability in terms of energy needs and lack of a self-sufficient domestic production and distribution network. Furthermore, increased attention to climate change and global warming in the 1990s prompted international action, with Japan in the center. The Kyoto Protocol was signed in the end of 1997, with Japan committing to ambitious goals; Japan pledged to reduce its greenhouse gas emissions with 6% from the 1990 levels in the first implementation period of 2008-2012 (UNFCCC). A few environmental laws had already been passed in Japan prior to the ratification of the Kyoto Protocol (Schreurs 2004), but it was only after the Kyoto Protocol that Japan publicly pledged to reducing its carbon footprint, together with other significant polluters around the world. The Kyoto Protocol sparked laws on environmental conservation as well, as the nation began to see more and more pollution in and from its neighboring countries, like acid rain

from China and declining fish populations in the oceans (Schreurs 2004). The Kyoto Protocol is considered a failure by many scholars, pointing to the big free-riding problems, as well as large greenhouse gas emitters failing to ratify the Protocol. Not to mention that overall global greenhouse gas emissions increased rather than decreased in the decade after the ratification (Bang, Hovi and Skodvin 2016). There was much skepticism towards the likelihood of the Kyoto Protocol ever leading to a greener economy and lifestyle in Japan. The promotion of nuclear energy to secure the production of energy, rather than working to reduce the demand in general, could create worse environmental problems, according to some researchers (Kondoh 2009). However, for the Japanese government, climate change fit nicely into the already existing need for less imports of fossil fuels, and it strengthened the belief in nuclear power as a main alternative.

Following up on the Kyoto Protocol, *The Bill for the Promotion of Measures to Tackle Global Warming* was submitted to the Diet in the spring of 1998, and states that “Japan must take immediate actions in order to meet the targets smoothly and confidently by the first commitment period starting 2008” (Ministry of the Environment 1998). In this bill, nuclear power is again presented as an environmentally friendly alternative, in addition to completely clean, renewable energy such as hydro, solar and thermal energy.

In 1999, the semi-public nuclear reprocessing corporation JCO accidentally spilled nuclear fuel, which caused the death of two plant workers, and exposed 600 people to nuclear substances (Nakamura and Kikuchi 2011). Nakamura and Kikuchi argue that the Japanese government has glossed over these accidents, and that if both the energy producers and the government had had more stringent safety rules and precautions, the accidents would not have happened. A New York Times briefing from 2002 outlines how Tokyo Electric Power Company, Chubu Electric Power Company and Tohoku Electric Power Company were forced to shut down reactors after the companies admitted to having concealed inspection data which revealed cracks in reactor structures (The New York Times, September 21 2002).

2.2 The introduction of the Basic Act on Energy Policy and the subsequent Basic Energy Plans

The Basic Act on Energy Policy (Law No. 71), adopted in 2002, is the main building block of Japan’s current energy policy. It is to be revised and renewed every three years, with the 2002

version being the first one. The Basic Act on Energy highlights three fundamental principles; Energy, Environment, and Economy (Japan for Sustainability, February 2012). Revisions have since gone under the name Basic Energy Plan and Strategic Energy Plan, interchangeably. To avoid confusion, these plans will be referred to as Basic Energy Plans in this thesis.

2006 saw the presentation of the New National Energy Strategy. This strategy focused mostly on energy security, and was created at a time where the prices of fossil fuels were rising quickly, and resource competition was a concern to Japan (Kucharski and Unesaki 2017). The New National Energy Strategy worked as a preliminary template for the Basic Energy Plan of 2007, and was founded on three main objectives: (1) strengthening energy security, (2) having a comprehensive approach to environmental issues and issues of energy, in other words, sustainability, and (3) committing to working with other Asian nations to avoid detrimental resource competition (Kucharski and Unesaki 2017). This is in essence what has been dubbed “the three E’s”, the three fundamental principles of Energy, Environment and Economy.

Following the New National Energy Strategy, the first revision of the Basic Energy Plan was adopted in early 2007. There were 4 key strategies of the plan, which are outlined below in the words of Kucharski and Unesaki (2017):

- (1) “Promotion of energy conservation and energy efficiency and establishing a resource-saving socioeconomic structure”.
- (2) “Diversification of energy sources with a particular focus on nuclear power and the nuclear fuel cycle”.
- (3) «Promotion of strategic and comprehensive measures for securing a stable supply of fossil fuels and uranium”.
- (4) “Engaging in energy diplomacy and environmental cooperation with other countries and supporting the independent development of resources overseas by Japanese companies”.

Nuclear power is a major part of the energy plan, showing how important the production was for the Japanese government at the time. The next revision, the Basic Energy Plan of 2010 (METI 2010a) would become the last revision of the Basic Act on Energy Policy before the

Fukushima accident, hence it is a very interesting document to analyze. The Plan continues the tradition of using nuclear power as a way to reduce Japan's impact on global warming, and also states that Japan will work to produce more energy from renewable sources, although no concrete goals are set for that in this plan (Japan for Sustainability, February 2012). The Basic Energy Plan of 2010 set five goals for 2030, which are summarized as follows by Japan for Sustainability (February 2012):

- (1) double the energy self-sufficiency ratio (18% in 2010) and the domestically produced fossil fuel ratio (26 % in 2010).
- (2) Increase ratio of energy from zero-emission sources like nuclear and renewable energy to 70 % from 34 %. To achieve this, the Plan asks to build 14 more nuclear power plants, raise the plant capacity rate to 90 % (at 60 % in 2008), as well as maximize the utilization of renewable energy.
- (3) Cut CO₂ emissions from households by half.
- (4) Raise energy efficiency within industry. The goal is to have the highest energy efficiency level in the world.
- (5) Maintain or achieve top-level shares of global markets for energy-related products and systems.

The Basic Energy Plan of 2010 revealed aspirations to create the “world’s most advanced interactive grid network by the 2020s” (METI 2010a), which would change the demand structure into one of low-carbon energy, realize better resource diplomacy and more support for energy technology and innovation. It did not include any specific structural reform or deregulations (Kucharski and Unesaki 2017), but it did promise shorter periods of operation suspensions than before, in order to make safety inspections more efficient and less intrusive. According to METI, this would be an important part of an “independent and environment-friendly energy supply structure” (METI 2010b). We will see later in the post-Fukushima Basic Energy Plan that this is not a decision that lasted long, as improvement of efficiency should not happen at the expense of extensive safety measures.

2.3 The Fukushima accident and the following period

In March 2011 the Great Eastern Earthquake, measuring a magnitude of 7.1, triggered a tsunami that disabled and damaged the power supply of the Fukushima Daiichi and Daini nuclear power plants (Fukushima 1 and 2), causing a meltdown of the cores in three of the

reactors due to the cooling system being out of order. The radioactive particles released as a result of the accident measured 940 PBq, and the accident rated 7 on the INES scale, according to World Nuclear Association (n.d.). Although no human lives were lost due to radiation or the cleanup afterwards, nor has any cases of radiation sickness been recorded, over 2000 people lost their lives due to the tsunami caused by the earthquake, including 3 TEPCO employees at the two Fukushima power plants. Furthermore, the meltdown resulted in large evacuations in the surrounding areas, with thousands of people losing their homes and livelihoods.

The nuclear facilities were prepared to withstand tsunamis, with both the plants being constructed 10 and 13 meters above sea level due to the scientific knowledge of the latter part of the 20th century. However, the 12 meters tall tsunami resulting from the Great Eastern Earthquake greatly damaged the seawater pumps situated at a lower altitude. Moreover, World Nuclear Association (n.d.) states that talks were in progress in Japan regarding new scientific information showing that the nuclear reactors were in fact not prepared for such a powerful earthquake and tsunami, and that no action had yet been taken to increase the safety measures of the plants.

The anti-nuclear movement rose in numbers following the Fukushima accident, seeing large, unusual demonstrations taking place all over the country. To this day, there are weekly demonstrations outside of the Prime Minister's office in Tokyo. According to Akira Kawasaki (2013), the demonstrations attract people from all parts of the political spectrum, regardless of opinions on other matters. The demonstrations are not only in opposition to nuclear energy and technology, but also against the government's misinformation and concealment. The government did, in fact, not publicly admit that a meltdown had happened in the Fukushima reactor until May 2011 – two whole months after it happened. Ogawa (2013) explain that the anti-nuclear demonstrations grew from around 300 people in March 2012, to 970 000 people in August the same year. The demonstrations were organized by the Metropolitan Coalition Against Nukes (*Hangeren*). The state-run TV station NHK did not make noticeable reports on the demonstrations, occurring every Friday, until the end of July 2012. Ogawa optimistically sees the change in public opinion as a shift from the old Japan to the new Japan, a Japan that demands stricter safety measures and more transparency. The demonstrations by themselves were quite exceptional in Japan, showing an increased will and courage to speak up against what many considered dangerous policy.

It was argued that the Japanese policies following the accident was largely focused on financial considerations rather than public health (Kawasaki 2013). Concerns have been raised regarding the government's approach to the safety and health of the population surrounding the power plant, with government officials' slanderous remarks towards the population revealed in social media in 2013, further lowering the public trust in the government (Kawasaki 2013). The rise of the anti-nuclear movement created a seemingly large discrepancy between the government's longstanding energy strategy and the public opinion on the means to get to energy self-sufficiency.

The Fukushima accident provided an excellent opportunity for the anti-nuclear movement to gain traction and sympathy domestically in Japan, also backed by the strong reactions from other nuclear power nations. Japan's immediate response to the accident was to shut down all nuclear reactors, in order to prevent a similar accident to happen elsewhere in the country, and to reassess the safety procedures and other issues relation to the operation of the power plants. The Naoto Kan government intended a full decommission of all nuclear power plants on the islands, focusing more on renewable energy sources for the future. Yoshihiko Noda, who took over the Prime Minister post after Kan's resignation in the fall of 2011, promised continued phase out of nuclear power, but was in charge of starting up several nuclear power plants in 2012 to attempt to help the Japanese economy.

2.3 Post-Fukushima and current energy policy

The Fukushima accident led to the government having to rethink nuclear power in Japan. Before the Fukushima accident, nuclear energy made up 25% of Japan's energy mix, going down to 0 % in 2012 (Suzuki 2019). After the 2010 Basic Energy Plan, the next Basic Energy Plan revision was supposed to be out in 2013, but due to the Fukushima accident, then Prime Minister Naoto Kan asked for a complete review of the plan to be ready by 2012 (Japan for Sustainability, February 2012). The government did not go through with this review. Rather than deciding on a hastily created revision right after Fukushima, the government went ahead with the original schedule, and the next Basic Energy Plan was presented in 2014. Some significant changes were approved early on, however, such as the shut-down of all nuclear reactors, demanding stress tests be passed before being allowed to go online again. In addition, the Diet approved a significant bill in June 2012 which moved the nuclear safety

regulatory mandate away from METI and to the newly established nuclear energy regulatory authority NRA – the Nuclear Regulation Authority (Shadrina 2012). Questions were raised regarding METI’s role in the nuclear industry as to whether their mandate has been to promote the nuclear industry, or whether it has been to regulate and act as an impartial organ overseeing the safety of the industry (Shadrina 2012), and moving the mandate away from METI was a step towards reinstating trust in the Ministry. The Advisory Committee for Prevention of Nuclear Accident released a report in the end of 2011 calling for a separation of nuclear regulation and promotion, improved management of human resources and crisis, new regulations for safety and transparency, as well as the assimilation of all nuclear regulation functions in one agency (Shadrina 2012; JAEC 2012).

Every year, METI publishes an annual report on energy for the previous year, called Energy White Papers. The Energy White Paper 2012, being the first of its kind written after the Fukushima accident, outlines issues that was discovered after the Great East Japan Earthquake in March 2011. It states that the Fukushima accident helped identify the weaknesses and vulnerabilities of Japan’s energy system and focuses mostly on nuclear power. The main point of the White Paper is that Japan is in need of reviewing its energy policy with a “zero-based thinking methodology” (Energy White Paper 2012). This zero nuclear energy approach was the immediate response by the Naoto Kan government after the Fukushima accident, and included plans to slowly, over time phase out nuclear power completely in Japan, seeking new and different ways to produce the energy needed (McLellan et. al. 2013). The plans required all nuclear power plants to undergo “stress tests” to ensure the safety of the plants, and disallowed any reactors that did not pass to restart after the accident. Thus, with all the nuclear power plants undergoing tests, in 2012 Japan’s energy needs were met with only two nuclear power plants running. According to Kawasaki (2013), the average energy consumption in Japan decreased in 2012 through combined efforts by private households, industry and government. However, Kawasaki argues that the issue is not how to compensate for the loss of electricity a nuclear phase-out would cause, but rather a question of efficiency and energy saving.

After the Fukushima accident, the DPJ gradually lost their political power and support, and government was taken over by the LDP led by Abe, yet again. Kawasaki (2013) explains the LDP’s political victory as follows: “expectations for a stable government, the Japanese election system, and division among the smaller parties”. In the time after the shift in power,

the LDP made no reference to the DPJ's "zero nuclear power" strategy and was, according to some authors, back to "business as normal" where nuclear energy is concerned (Kawasaki 2013, pp. 608). Nevertheless, renewable energy was now treated as a more important venture and a shift in energy policy which will favor renewable energy production was promised.

2014 saw the next important revision to the Basic Energy Plan. Where the 2010 plan made few specific commitments, the 2014 plan committed to energy sector reforms to promote competition and stimulate the establishment of new businesses. It assessed that nuclear power would play a smaller role in the future, minimizing the use of nuclear power in the overall energy mix. It also made the significant commitment to connect all of Japan's regional electricity grids into one, national grid system (Kucharski and Unesaki 2017), which would open up for industry and households to have greater ability to choose electricity provider, and also prevent an electricity deficit in regions negatively affected by natural disasters in the future. To the dismay of environmentalists, coal was affirmed to be an important energy source, and the Plan asserts that clean coal technology would be promoted in Japan in the years to come. In addition, the Plan highlights specific steps to follow in order for Japan to build a "hydrogen society". Perhaps most notably, the Plan commits to including more public engagement when it comes to discussing energy-related issues, as well as the promotion of greater energy education. This is the first time such a clause has been included in a revision of the Basic Energy Plan (Kucharski and Unesaki 2017).

Although all three revisions up to this point upheld the main focus of enhancing energy security and self-sufficiency, the 2014 revision included specific policy goals in order to create a change within the energy system following the Fukushima accident. The government faced pressure from within the energy sector to preserve the status quo, while the nuclear power sector promoted continuing using nuclear power in order to avoid higher electricity prices, which in turn could have devastating ripple effects (Kucharski and Unesaki 2017). The Advisory Committee for Natural Resources and Energy (ACNRE) also advocated for the continuous use of nuclear power, effectively deeming any ambitious renewable energy targets unrealistic and harmful to business. The end-result for nuclear power was a commitment to reduce nuclear power generation as much as possible, with no promises to phase it out completely.

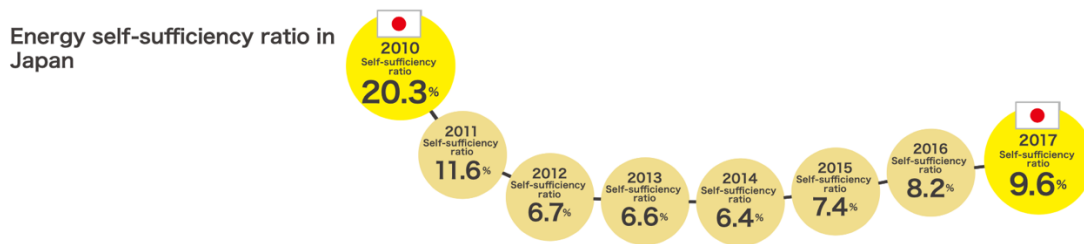
2.4 Nuclear policy in Japan today

The Basic Energy Plan 2018 is the fifth plan, and the second after Fukushima. It lays the foundation for the current energy policy in Japan. The main focus of the plan is still what has been termed *3E+S*, which includes energy security, environment, economic efficiency, and safety. The plan outlines how Japan would like lower dependency on nuclear power generation, to the extent possible, but it also suggests restarting nuclear power plants, with continuous improvement of safety. In the plan, nuclear power is listed as one of the solutions for a decarbonized Japan (Basic Energy Plan 2018). The Plan aims for a 26 % reduction in greenhouse gases, by increasing the use of renewable energy. However, while the plan aims to increase energy from renewable sources from 22 to 24 %, it also aims to increase the share of nuclear power from 20 to 22 % (Yuusou 2018). In addition, the Plan again states Japan's aspiration to become a "hydrogen society" (Japan for Sustainability, 2018).

Japan's current 2030 energy goals, as outlined in the Basic Energy Plan of 2018, involves generating between 22 and 24 % of its needed energy from renewable sources. Before Fukushima, only 10 % of Japan's energy needs were met using renewable sources (EU-Japan Centre for Industrial Cooperation, 2018), with hydroelectricity having fallen from 4.4 % in 1973 to 3.3 % in 2010 (METI 2019). Moreover, Japan aspires to cut dependency on energy generated from fossil fuel from 65 % before 2011 to 56 % in 2030. When it comes to nuclear energy, the 2030 goal is to decrease the dependency on nuclear energy from 25 % before Fukushima to 22-20 %, a significantly smaller decrease than fossil fuel. Nuclear energy is still presented as one of the main options for decarbonization (METI 2018). In addition, Japan has set goals to take energy saving measures and promote hydrogen and energy storage, to be able to stockpile more energy and decentralize the energy systems (EU-Japan Centre for Industrial Cooperation, 2018; METI 2018). In order to reach these goals before 2030, the Basic Energy Plan lays the foundation for the strategy Japan should follow until the next revision in 2021 and should guide policymaking in this period. Only a few nuclear power plants have been decommissioned as a result of failing stress tests, or due to expected costs of safety upgrades being too high (Behling et. al. 2019).

The most recent report on the situation of Japan's energy mix and efficiency can be found in the Energy White Paper of 2019. This document lays out the situation of Japan's energy mix and self-sufficiency ratio of 2017. It compares the current (2017) ratio with Japan's energy

situation of 2010, the year before the Fukushima accident. The figure below shows how the self-sufficiency ratio dropped dramatically in the beginning of 2011, decreasing slightly until 2014, before starting to pick up again in 2015, as more nuclear power plants were brought online again. Should this growth continue, Japan’s self-sufficiency rate will be back to pre-Fukushima levels before 2030.



Primary energy sources: Oil, natural gas, coal, nuclear power, solar power, wind power, and other energy in their original forms.
Energy self-sufficiency ratio: Of the primary energy sources required for daily life and economic activity, this is the ratio that can be secured within one's own country.

Figure 1, METI, 2019

The same White Paper shows the development in Japan’s energy mix between 1973, 2010 and 2017. From an environmental perspective, the figure below is cause for optimism, as the dependency on fossil fuels decreased by around 13 % between 197 and 2010. However, due to the shut-down of nuclear power plants following the Fukushima accident, the dependency on fossil fuels have increased again.

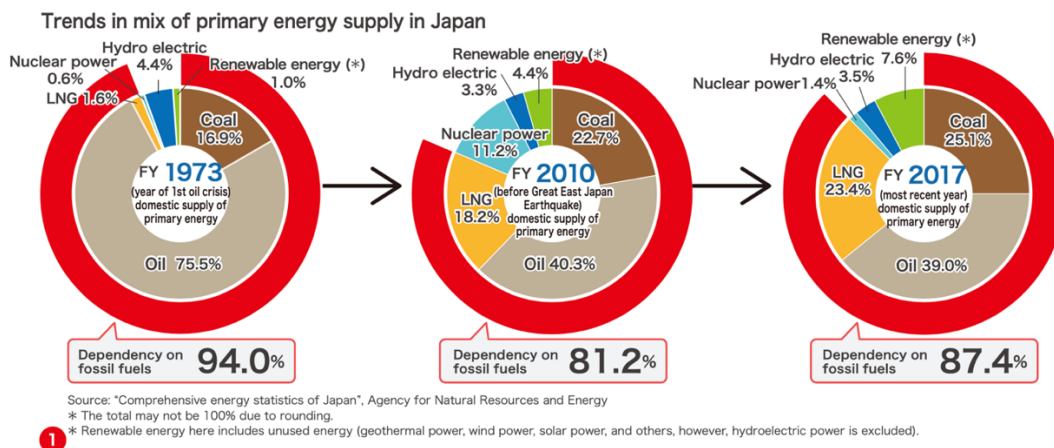


Figure 2, METI, 2019

From the perspective of economy, the cost per unit of electricity produced at a nuclear power plant was, in 2011, estimated as the lowest when compared to other sources of energy, both fossil and renewable (Shadrina 2012). From a strictly economic viewpoint then, nuclear

power is a viable, efficient and profitable solution, especially considering how it has been able to cut Japan's import of fossil fuels quite significantly since first implemented in the 50s and 60s. It has also been a source of job creation in rural areas of Japan, and as Japanese work ethics involve a norm of staying with a company until retirement rather than moving between companies, the power plants have been a stable workplace for many people.

Furthermore, from an environmental perspective, one which METI uses quite often when arguing for the use of nuclear power, Japan, in its current state, will not be able to reach its goals and obligations pledged first under the Kyoto Protocol and later in the Paris Accord without nuclear power.

METI's current challenges in reaching Japan's goals for 2030, and later for 2050, largely revolve around safety. Claiming safety to be a top priority, METI states that they seek to minimize Japan's dependence on nuclear power and expand renewable energy technology and industry. As we have seen from the Basic Energy Plan of 2014 and 2018, METI does not have any intentions of ridding the country of nuclear power plants, and has instead been very vocal of its new safety measures. In a report titled Japan's Nuclear Energy Policy, summarizing important points from the 2018 Basic Energy Plan (METI 2019), METI shows which reactors have been restarted, which has passed safety review, which are under review, and which will be decommissioned. All reactors in Fukushima Daichi and Daini power plants have been decommissioned.

Considerable attention is given to Japan's policy regarding nuclear weapons, and it is again stated in the Basic Energy Plan of 2018 that although Japan strives to maintain a nuclear fuel cycle that reprocesses exhausted fuels, the government still commits to not possess plutonium for any other purpose than for generating electricity (METI 2018). Anything else would be unconstitutional in a country like Japan. All nuclear power plants in Japan are owned by private companies, while the promotion of nuclear power as a desirable energy source has been conveyed as a national project (Kondoh 2009). The current policy does not stray from this, and the government has no desire to take over the nuclear power production from the private actors. Financial support is still being given.

METI is upholding its promise of more transparency in the processes behind nuclear power generation, as well as decommission work, by publishing a simplified figure (figure 3)

showing all organs and actors involved. The Ministry claims to host detailed dialogue events with locals in areas that are particularly sensitive of and exposed to natural disasters, as well as areas that are desirable locations for storage of spent fuels and waste and decommission work. In addition, more cooperation with other nations using nuclear power is highlighted as a priority for the Ministry.

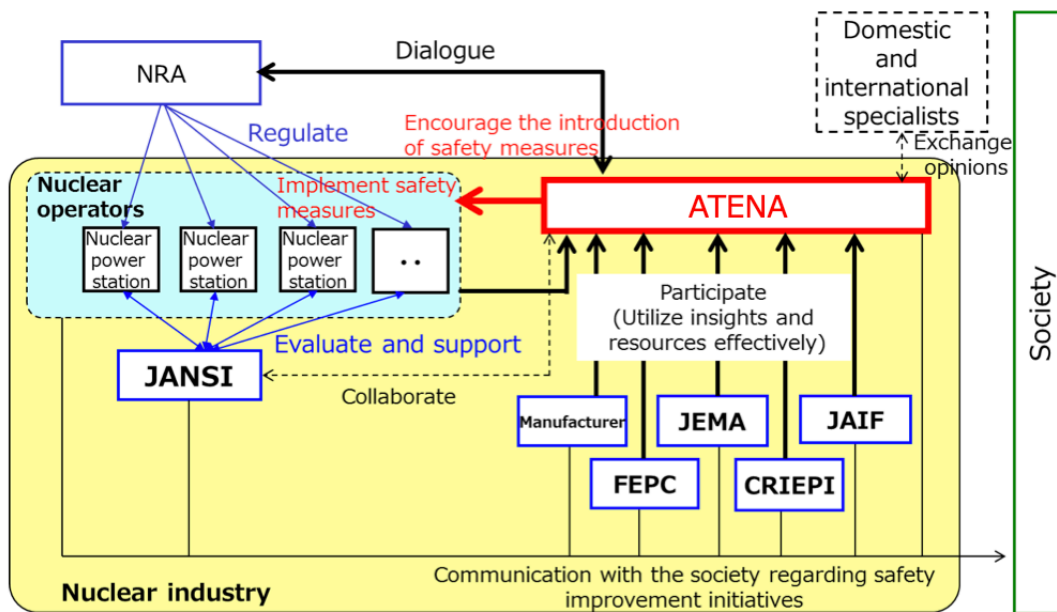


Figure 3, METI 2019

A new revision of the Basic Energy Plan is due 2021, and it is still unclear if COVID-19 will have any effect on the planned schedule.

2.5 Conclusion

This chapter has explained the development of nuclear policy in Japan between the 1950s and today's policy. It has presented the important events in Japanese nuclear history, showing how global events such as the Gulf Crisis and the Kyoto Protocol has had an impact on Japan's domestic energy policy. It has presented information from the Basic Act on Energy Policy and the subsequent Basic Energy Plans, paying extra attention to the Basic Energy Plans of 2010, 2014 and 2018. These Plans are important documents to analyze in order to understand the energy policy, the goals and methods used to reach them. This chapter has also discussed the Fukushima accident and its impact on the Japanese people and public opinion on nuclear power.

3 Building a theoretical framework using focusing events and framing theory

This thesis seeks to explain the lack of change in Japanese nuclear energy policy after the Fukushima accident by using theories of framing and focusing events. The effects of focusing events on nations is a topic of great interest to me as a researcher, and the case of Japan and the Fukushima accident is an extremely interesting case because of the lower degree to which there has occurred policy change after the focusing event. This chapter will lay out the definition of focusing events, as well as present the expectations I have to Japanese energy policy after Fukushima, given the framework this theory provides. In addition is this thesis guided by framing theory, in an attempt to further explain the development of Japanese energy policy since the accident in 2011. Using both the theory on focusing events and on framing theory, I hope to highlight the slightly opposing expectations of the aftermath of the Fukushima accident, investigating why there has not been larger changes in Japanese nuclear energy policy since the accident. This chapter will outline the two theories and how they can be utilized to explain certain aspects of the case of Japan. The chapter will also discuss what results and explanations we can expect by looking at the case through the lens of these theories, as well as discuss the actors involved.

3.1 Focusing events

Because this thesis seeks to investigate if and how the renewable energy policy has changed in Japan after Fukushima, it is perhaps natural to take into consideration focusing events theory, as Kingdon defines them. A focusing event is an event that is not caused on purpose within a system and is therefore shocking to the community. It must also receive a significant amount of attention (Alimi and Maney 2018). The Fukushima Daiichi nuclear reactor accident was caused by an earthquake, in other words, a very much unexpected event. It received attention worldwide, sending shockwaves through other nations relying on nuclear power to satiate their energy demands, and is thus a good example of a focusing event. An earthquake cannot be foreseen by a government, yet the government and other involved parties are judged based on their response to such a disaster. The Fukushima Daichi nuclear reactor malfunction and meltdown caused massive reactions both in Japan and abroad, quite literally shocking the world with its devastating results for both the people evacuated from their homes, lives lost to the preceding tsunami, and for the economic system within Japan, as well as the energy deficit experienced in the period ensuing.

The differentiation between the terms “exogenous shocks” and “focusing events” can be discussed at length, but in this thesis, I will consider them, if not interchangeable, at least somewhat two sides of the same coin. Much of the literature on exogenous shocks focus on the effects of such exogenous shocks on economic systems, from Akhmet et. al (2013) discussing chaos ensuing in economic systems after an exogenous shock, to Kilian (2008) arguing for how much exogenous oil supply shocks has shaken up the American economy. On the other hand, exogenous shock theory is applied to research on democratic accountability and changes within democratic systems following an exogenous shock such as a natural disaster (Remmer 2013).

Although the Fukushima Daiichi accident is considered a focusing event, it does not automatically mean that there will be a change in the country’s nuclear policy. Birkland and Warnement (2017) argues that “a focusing event isn’t necessarily a catalyst for new policy, but can become a symbol, or ‘a form of evidence of the need for policy change’” (pp. 112). According to Birkland and Warnement (2017, pp. 118), the risk of disaster has the largest potential to lead to increased attention to a problem. Miranda Schreurs (2013) explains that “poorly managed responses to disasters or crises can invite criticism and risk a government’s loss of legitimacy”. It was indeed the case in Japan, where then-Prime Minister Naoto Kan had to resign, and TEPCO, the company in charge of the Fukushima Daichi nuclear reactor was heavily criticized for the way they handled the crisis. Birkland and Warnement explains that ‘dread risk has the greatest potential to lead to increased attention’ (2017, pp. 118), which should mean that the risk of similar accidents in the future intensifies public attention to the issue. Indeed, we see this in action in Japan, with the still ongoing weekly demonstrations against nuclear power outside of the Diet building in Tokyo.

As aforementioned, some authors refer to situations like devastating natural disasters as “exogenous shocks”. Golob (2003) explains that such events, by generating a demand for new approaches in order to manage crises, work as catalysts for bringing new ideas and thoughts into the policy-making process (pp. 373). Furthermore, as Golob (2003) explains, exogenous shocks have often been cited as the main explanation for policy change. A focusing event can result in many different responses on a national level, which makes a situation like that an ideal “laboratory experiment” to study policy change patterns (Golob 2003). Remmer (2013) asserts that generally, exogenous shocks tend to increase the chance

of early elections, sometimes resulting in regime change. In Japan, we saw the power shift from the DPJ, who wanted to end the nuclear era after Fukushima, to the LDP, the party which has been in power the majority of periods since World War II, and who also is positive to the continuation of nuclear power production.

Following Kingdon's theory on focus events, it is expected that a sudden crisis like the Great Eastern Earthquake, which resulted in a devastating tsunami and consequently the meltdown in the Fukushima Daiichi nuclear reactor, should have been a catalyst for new policy on nuclear power production in Japan, or in the very least a stimulus for a new and different conversation on Japan's energy goals and needs, as well as possible risk factors involved with nuclear power plants, safety measures and transparency. The theory creates a framework within which it is possible to analyze policy change in relation to large, unexpected and unanticipated events. It also suggests that policy change is likely to occur after such an event. Because of this, focusing events theory is appropriate when researching policy change in Japan following a natural disaster like the Great Eastern Earthquake, which had such devastating effects on the Fukushima nuclear power plant. However, Alimi and Maney (2018) argue that a focusing event does not necessarily have to turn into a transformative event, stating that policy change is not a given after such a shock to the community. They also assert that not all events with the attributes of a focusing event will turn out to be an actual focusing event.

Kingdon's theory on focusing events creates an expectation of significant policy change following a national disaster such as the Great Eastern Earthquake and the Fukushima accident. The expectations are as follows:

- The Great Eastern earthquake and the subsequent tsunami was a focusing event.
- The accident should lead to an increased focus on the risk analysis of nuclear power plants.
- The accident should lead to significant policy change within the energy sector of Japan.

Looking at other nuclear nations, there is much evidence that a focusing event like the Fukushima accident can lead to drastic changes in a country's energy policy. When looking at other countries with well-developed nuclear energy production, such as Germany, the Fukushima accident sparked strong emotions and demands for a nuclear-free society. In

Germany, existing plans to phase out nuclear power existed previously, but these plans were greatly accelerated following the accident in Japan. Conversely, Japan had no plans to phase out nuclear power to begin with, so a strict comparison between Germany and Japan is not entirely without problems, however, the little impact the accident has had on Japanese energy policy is surprising when seeing the massive impact it had on German energy policy.

Many parallels can be drawn between Germany and Japan when it comes to nuclear energy policy. Since Fukushima, both Japan and Germany has increased their dependence on coal burning for energy production, to make up for the lack of nuclear power – in Germany’s case because of the phase-out, and in Japan’s case because of the shut-downs and the testing and safety measures put in place after the accident. Feldhoff (2014) suggests that the differing approaches post-Fukushima in Germany in Japan is due to geopolitics, general energy policy and civil society. While Germany has always had a large anti-nuclear movement, fueled even more by Chernobyl in 1987, Japan’s nuclear history is dominated by its island nation identity and economic incentives (Feldhoff 2014). The Fukushima accident received massive attention in Germany, and although Germany has the advantages of there being little to no earthquakes and tsunamis, being right in the middle of Europe, an important actor in the European Union, and a large economic power, the German government turned on its heels and took nuclear power out of their energy equation.

To summarize, the Fukushima Daichi and Daini accident can be defined as a focusing event because it was a happening that received immense attention from the government and civil society of Japan and the world. It was an event that occurred outside of the economic and political system of Japan, caused by an unpredictable natural disaster.

3.2 Framing theory

First theorized by Gregory Bateson, framing theory refers to how an understanding of a situation is dynamically built and changed through the work of the parties involved (Bateson, 1972). Bateson (1972) explains that frames “guide the ways situational participants perceive their social realities and (re)presents these to themselves and to others ...”. Frames reflect the basic organizing principles of the actors and is a social construction of social phenomena. Framing occurs when political leaders present an issue in the way most convenient to them according to their agenda, by mass media to construct the reality they want to portray, and in

social and political movements to create a social reality. Hallahan (1999) explains that framing theory can be applied to all levels of public relations, from interpersonal to societal levels. In policymaking, framing is the process where actors construct the meanings of a situation relevant to the policy.

«Framing», as such, refers to the process of developing or changing a specific conceptualization of a problem or an issue (Chong and Druckman, 2007). Bateson (1972) explains that there are three processes at work in framing; naming (“sense-making”), selecting and categorizing, and storytelling. According to Bateson (1972), framing organizes the knowledge that is already there, as well as the values held by the community, and guides the action resulting from this. Categorizing is the action of identifying an issue as something, rather than something else. It establishes differences between “us” and “them”, what is “normal” and “abnormal”, or “safe” and “dangerous”.

Entman (1993) argues that framing is a process of selection and salience. When framing an issue, one chooses a part of a perceived reality, and makes this part more salient in the communicated text, so as to promote a specific definition or interpretation of a problem. Frames effectively help defining the problems, diagnose what causes the problem, make moral judgements on the causes, and suggest solutions to the problem (Entman 1993).

Establishing frames guides individuals towards a certain perception of an issue. Naturally, an individual’s participation in a community with a common language influences that individual’s perception of the meaning of words and phrases. However, a common language and a common culture does not mean that all members of the group perceive things the same way. Therefore, actions made based on the framing of an issue cannot be credited exclusively to culture (Bateson 1972).

Within framing theory, there is also the factor of entrepreneurship. Chong and Druckman (2007) discuss framing as a tactic used by political entrepreneurs to manipulate individuals into a certain perception of a situation, in other words to move individuals to embrace a certain framing of an issue. As explained by Mintrom and Luetjens, policy entrepreneurs are “energetic actors who work with others in and around policymaking venues to promote significant policy change” (2017, pp. 1363). Policy entrepreneurs have the means and power to make significant policy changes, but also to prevent them. They possess high awareness of

their political environment and are thus able to take the appropriate steps to influence policy. In the case of climate change, for example, policy entrepreneurs in many countries have been able to influence policy change in favor of environmentally friendly policy, even while the economic incentives all countries face still encourage policy that contribute to additional global warming and climate change (Mintrom and Luetjens, 2017). Policy entrepreneurs are those actors who are able to actively work towards a framing of issues that promote a desired outcome.

Hallahan (1999) explains that there are seven types of framing; the framing of situations, attributes, choices, actions, issues, responsibility and news. The Japanese government has long framed nuclear energy within the context of energy security, self-sufficiency, and an idea of Japan as a vulnerable island nation without many natural resources. Many Japanese governments have presented nuclear energy as the savior of Japanese energy self-sufficiency, and also places nuclear energy in the frame of environmentalism and the threat of global warming. Using the context of climate change and the preferable reduction of use and production of fossil fuels, Japanese policy entrepreneurs have been successful in incentivizing investments and inspiring trust in nuclear energy production in Japan. However, a big blow was dealt to the nuclear energy industry after the Fukushima accident, which left many people distrusting of the energy companies in charge of the nuclear power plants. As in many other countries, nuclear power has become a contested topic in Japan, with many people opposing the development of new plants as well as the reopening of the existing ones.

Following the thinking behind framing theory, it is expected that the current state of nuclear energy policy in Japan is a result of long-term stringent framing of nuclear power as a necessary, positive and helpful part of Japanese energy production and survival. It can be argued that there has been two different framings of nuclear power in Japanese energy policy prior to Fukushima; firstly, nuclear energy as a positive and necessary means to energy self-sufficiency and economic independence for Japan, and secondly, nuclear energy as a means to combat climate change and help Japan reach its goals set forth by their pledges under the Kyoto Protocol. In a way, the framing of nuclear power as a tool to achieve climate goals is a convenient building block towards the self-sufficiency framing established in post-World War II Japan. Furthermore, there is the framing of nuclear energy after the Fukushima accident in 2011. The shut-down of nuclear power plants across the islands of Japan combined with only slightly increased production of renewable energy led to increased

imports of non-renewable energy sources from abroad, setting the governments' goal of self-sufficiency back several years. Although attempts were made to frame nuclear energy as unsafe and the "wrong" solution for Japan, this did not get the opportunity to bloom into a larger movement, perhaps due to LDP's victory in the national election following the Fukushima accident. Instead, nuclear power is framed as a stepping-stone to a green energy society. In the latest Basic Energy Plan from 2018, METI promises to phase out nuclear energy, yet plants are still being built and kept open, producing energy for the near foreseeable future in order to meet the energy demands of the country, and provide an economic environment where investment in non-fossil energy development is encouraged and subsidized.

The framing of nuclear policy in Japan has been very strong for decades, and a reason for this framing not breaking down under the pressure of such a powerful shock as the Fukushima accident, could be attributed to good entrepreneurship, working actively to keep the framing of nuclear power as positive as possible during a difficult time. Since the accident, METI has put more focus on safety routines and a need for more stringent safety measures and a system that ensures these measures are followed and documented. Feldhoff asserts that the private-sector actors in the so-called "nuclear village" has long worked to prioritize the furthering of the development of nuclear power in Japan, securing the status quo in Japanese energy policy.

To summarize the points above, applying framing theory to the case of Japanese nuclear policy leads us to the following expectations:

- The framing of nuclear power has been so strongly rooted in Japanese politics that not even a shock like the Fukushima accident could shake it. Or,
- Actors involved in energy policy and nuclear development and production has worked hard to quell the rise in anti-nuclear framing of the accident, making sure Japan will not follow in Germany's footsteps.

The expectations are therefore multiple; on the one hand, focusing events literature shows that the Fukushima accident should have had a major impact on nuclear policy in Japan, whereas framing theory leads us to expect that strong entrepreneurship has been able to manipulate the framing on nuclear policy to the advantage of the government, which is

presenting a strong case for nuclear power as the “only solution” for Japanese economy, financial independence and energy self-sufficiency.

Looking at specific actors who have been involved with influencing the framing of nuclear energy in Japan the past 10 years, we must deconstruct the so-called “Japanese nuclear village” (日本の原子力ムラ *nihon no genshiryoku mura*). The nuclear village is an imagined collective comprising of pro-nuclear advocates within the Japanese Diet, bureaucracy, financial sector, nuclear vendors, academia and media (Kingston 2012). In Japan, the culture of *amakudari* (天下り, literally translates to “descending from heaven”) means that government officials often secure well-paying jobs in industry after retiring from their government position. This practice is well-known and considered a norm in Japan, and in the case of energy policy, works to strengthen the ties between the nuclear energy industry and the ministries. This relationship is what created the term “iron triangle” in the post-war era, which is still prevalent in the literature and journalism today. Some authors put considerable effort into exposing bribes and nepotism within the nuclear village, pointing to TEPCO chairman taking members Japan’s most influential media organizations to China during the Fukushima crisis to lighten the mood and presumably sway them in favor of TEPCO and nuclear power (Kingston 2012). It is, however, not the intention of this thesis to uncover corruption or make any such accusations.

Immediately after the Fukushima accident, a future completely without nuclear power was envisioned by the DPJ and then Prime Minister Naoto Kan and later by Yoshihiko Noda (from September 2011). This government attempted to frame nuclear power as a danger and an industry that needed to be changed and removed, and although this sentiment was shared with many civilians, it was not enough to defend the DPJ’s position. While, in 2012 70% of respondents to a survey on nuclear power responded that they thought Japan should reduce its production of nuclear power (Pew Research Center 2012), the general election said otherwise, and the DPJ did not get a chance to lead Japan towards a quick phase-out of nuclear power, unlike Germany. This leads to another important actor to take into consideration, which of course is the current government, which until the fall of 2020 was led by Shinzo Abe (as this thesis is submitted, the Prime Minister is Yoshihide Suga). The LDP, and particularly Abe, has strong ties to the nuclear industry in Japan, with Abe being one of the most pro-nuclear politicians at the moment. In 2019, Mainichi Shinbun newspaper

surveyed 370 candidates for the House of Councillors, where all but one of the respondents positive to Japan's nuclear future was members of the LDP (Mainichi Shinbun, July 11 2019).

3.3 Conclusion

This chapter has explained the theoretical framework this thesis is using to answer the research question; why have we not seen a drastic change in Japanese nuclear energy policy since the Fukushima accident? It has introduced the theories on focusing events and framing, giving a detailed explanation of how these theories are applied, as well as the expectations they raise in regard to the study. It has shown that the Fukushima accident can be categorized as a focusing event, making it an excellent example for this single case study. It has also shown how the framing of a problem or an issue has the potential to lead to significant policy change as a result of the increased attention on the issue or problem.

4 Methodology

The research question this thesis sets out to answer is why have we not seen a drastic change in Japanese nuclear energy policy since the Fukushima accident? This chapter will outline the methods used to answer the research question and explain the research design and process of this research. It will explain the methods of single case study and content analysis, which forms the basis of the research design. This chapter will also outline challenges, limitations and advantages to the methods used, which include a section on cultural differences and social challenges. Lastly, there will also be a section dedicated to researcher reflection, where I touch upon my ties to Japan and knowledge of culture and language.

4.1 Research design

First and foremost, the theory of focusing events is a theory that has long been of interest to me as a student and researcher. It has always interested me how a shocking and unexpected event could have the power to transform regimes and alter policy. Shocking events outside of a government's power, such as natural disasters and extreme weather, is something that many nations in the world experience, yet there is still much we do not know about the criteria for such events to lead to significant policy change. It was a theory I wanted to explore in greater detail, and I was able to do so with the case of Japan and the Fukushima accident.

When exploring the research design of this thesis, I took inspiration from scholars who have much experience with case study research; Robert K. Yin (2009), Robert E. Stakes (2008) and Helen Simons (2012). Their works helped me make a plan for my research and put the necessary steps in order, starting, of course, by defining my research question and selecting the case I wanted to research, before moving on to collecting data and sorting this data.

Single case study

This thesis is a single case study, focused on exploring the theory of focusing events, the Fukushima accident being the case in question. Robert Yin defines a single case study as “an empirical enquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident (2009). Single case studies are often considered exploratory research, and is almost always positioned within the realm of qualitative research. Single case study allows for a deep and thorough analysis of a particular phenomenon, where “the object of study is a

specific, unique, bounded system” (Stakes 2008). Furthermore, case studies are characterized by a special interest in an individual case (Stakes 2008). Simmons state that the case study emphasizes “the qualitative, the particular and the singular, as well as drawing attention to a major mode of reasoning in making sense of data” (Simons 2012). The single case study methodology allows me to explore the important actors within Japanese energy policy, explore different perspectives within the context of nuclear energy in Japan, and explain how the policy has changed, and also why. It allows for an understanding of the process of change within the policy.

Process tracing has been an important method used to develop this Master’s thesis. Collier (2011) defines process tracing as “the systematic examination of diagnostic evidence selected and analyzed in light of research questions and hypotheses posed by the investigator” (pp. 823). Mostly applied to qualitative data, process tracing is a method that helps drawing both descriptive and causal inferences, closely engaging with the case it is applied to. Collier (2011) argues that process tracing can contribute to gaining insight into causal mechanisms and provide an alternative method to address challenges faced by conventional regression analysis and interpretations based on statistical models, such as selection bias and reciprocal causation. This does not mean that the method of process tracing is only applied to qualitative data; on the contrary, some of the data used to explain public opinion and election results in this thesis stems from quantitative data gathered by other researchers. It also does not mean that process tracing is without challenges; there could be missing variables and probabilistic relationships, which are difficult to address. The method of process tracing can be utilized both in theory-building and in theory-testing, making it a versatile method in the social sciences and political science research (Beach 2017). Process tracing can be applied to several events, but in the case of this thesis, it is applied to a singular case. In the case of Japanese energy policy and Fukushima, it was helpful to begin with a timeline which included the series of events that has led to today’s policy.

Exploring the Fukushima accident as a case of a focusing event and using process tracing to explore the change within nuclear energy policy in Japan in the aftermath of the focusing event allows me to systematically investigate the change that has occurred, and draw causal inference based on the events leading up to change, as well as the

involved actors influencing change, and sometimes lack of change. The Fukushima accident is an historic event that is considered the worst nuclear accident in the history of nuclear power production. The selection of Fukushima as the case to base this study on builds on a search to deliver a comprehensive explanation of a significantly interesting historical outcome, which, according to Beach (2017) makes case-selection principles less relevant. Beach (2017) also states that it is necessary with some kind of former “cross-case knowledge of the population of the given theoretical relationship” to successfully utilize process-tracing in a single-case study.

Content analysis

When analyzing the Basic Energy Plans before and after the Fukushima accident, I have utilized methods of content analysis in order to systemize the information in these plans. In order to interpret the information in the policy plans in a way that is as close to the truth as possible, I analyzed the content of the Japanese versions of the policy plans, while using the English translations as an extra source. I was fortunate enough to gain access to the Basic Energy Plans from 2010, 2014 and 2018 in Japanese, while only the former two are available in English. Because of this, the Japanese versions naturally became the main subject of my analysis, given that any English interpretation of the 2010 plan would have to come from secondary sources, making a proper analysis of all the content in the Plan impossible.

According to Bengtsson (2015), qualitative content analysis is more than a process of counting, because the goal of the analysis is to connect the results of the analysis to the data’s context and environment. It is a process which “provides a systematic and objective means to make valid inferences from verbal, visual, or written data in order to describe and quantify specific phenomena” (Downe-Wambolt 1992). It is concerned with smaller pieces of communication instead of the larger picture, and can be used on all kinds of texts, including photo, video and messages (Pierce 2008). It should also be noted that to answer the research question, this thesis has made use of both qualitative, and to a certain degree also quantitative content analysis. This is done by comparing the energy policy plans from different points in time to map the change in policy and framing of nuclear energy.

All qualitative data deals with interpretation errors and challenges (Bengtsson 2015), however this is also true in all other data, qualitative or quantitative. In the case of content

analysis, an obvious limitation is the risk of selection bias when it comes to the selection of texts analyzed. However, used as a supplementary method in this thesis, I hope to alleviate the concerns raised by some scholars. Additionally, as this method is applied to texts available publicly, reproduction of the results is easy to accomplish.

4.2 Data collection

To gain the proper background knowledge and basis, I split my research on Japanese energy policy into three sections; one section including the necessary background and history of nuclear energy and the general energy mix of Japan; one section including literature and reports on the Fukushima accident; and one section on the relevant policy, including the Basic Energy Plans, White Papers and other official documents. To fully understand how the current energy policy works and why it is, it was necessary to develop as holistic an image as possible of the history of nuclear power in Japan and the actors involved in policymaking, as well as the political history of the country. A basic knowledge of how nuclear power plants work, how the Fukushima accident occurred and what happened, was also crucial.

Diversity in sources is very important, and one cannot study a region without reading research produced by local researchers and stories told by local people. Research only conducted from the “outside” of a community will not be able to reach the depths of understanding that is necessary for a kind of research that will actually benefit the community being researched. Hence, throughout this study, I made sure to rely on Japanese research as well as research produced by non-Japanese researchers. This allowed me to gain a deeper insight not only into the change in energy policy, but also into the context of the change, and the deeper cultural structures underneath.

The primary sources used in this research consists of publicly available documents produced by the Japanese government and ministries. As someone with the language abilities needed to read original reports published by the Japanese government, it was important to me to use these in my research. While the 2014 and 2018 Basic Energy Plans were available both in English and Japanese, all previous Plans were unavailable online. I was able to get in contact with METI to request the 2010 Basic Energy Plan, which was only available in Japanese, with no English translation. Without these primary sources, I would have had to rely solely on other researchers’ interpretations of the policy plans. That being said, it was important to

me to seek interpretations and analyses by other scholars well versed in Japanese politics and culture when reading these primary sources, as a policy document like the Basic Energy Plans do not give the foundational knowledge of context and history to be able to fully understand the reasons behind and true intentions of policy.

Normally, a case study would warrant collecting data from a variety of sources, in a variety of forms. My data sources come mainly from official documents and reports, scholarly reviews and articles, written accounts of historical events, and news from the period around the Fukushima accident, informing the context and discourse surrounding the topic of interest. Because this thesis seeks to explore policy change, I have confidence in the reliability of the data published by METI, as this is publicly available information meant to showcase Japan's energy policy.

In addition to the primary sources from METI, other data comes from secondary sources discussing and analyzing the case of the Fukushima accident, the future of nuclear energy in Japan, and energy policy in general. As with any research, I cannot guarantee that no selection bias is present. However, such bias would have to be a result of selection based on availability to me as a researcher and a non-native speaker of Japanese. Although my language knowledge permits me to include Japanese written research on the subject of this thesis, the selection of this research has depended greatly on the availability for me as a Norwegian student.

4.3 Challenges

My research process has not been without challenges. Some were anticipated, while others were unexpected. I was awarded a stipend from the Sasakawa Foundation, which works to foster cultural ties between Scandinavia and Japan, and awards stipends to students and other people who work to build bridges and connections across borders. I was initially expecting to use their contribution to my research to travel to Japan and, with the help of my connections at the Royal Norwegian Embassy in Tokyo, conduct interviews to further explore my thesis. However, due to the covid-19 virus, Japan closed their borders to all foreign visitors, which made it impossible for me to travel there, thwarting my plans to conduct these interviews in person. Although it could be argued that interviews could have been conducted using digital methods, I decided it would not be fitting for my project, given the cultural challenges. In

Japan, social interactions can generally be split into *honne* (本音) and *tatemae* (建前) – *tatemae* being the face you put on, and the opinions one puts out to one’s surroundings (one’s façade), while *honne* is one’s real opinions and feelings. These can often be quite different, and some authors attribute this to Japan’s strict community driven culture; it is very important to fit in and “be like everyone else” (Naito & Gielen 1992). As a researcher, I have experienced this before. During my time as an intern at the Royal Norwegian Embassy in Tokyo, I was also conducting research for my Bachelor’s thesis, conducting interviews with environmental NGOs in and around Tokyo. Throughout the research process, I learned that few people were open to participate in my interviews, and those that did had mixed responses to my inquiries – one even expressing surprise that I was a woman, because it seemed to them that the research I was conducting was “something a man would do”. Considering Japan’s industrial and political elite is still dominated by the male gender, women being few and far between, I was anticipating similar challenges for this project, perhaps amplified by not being able to use the right body language to establish trust and understanding, as well as going through the usual formalities, when not meeting in person.

To compensate for the aforementioned challenges, this research project focused more on written secondary sources such as research papers, journals and books, as well as primary sources such as the aforementioned Basic Energy Plans and yearly Energy White Papers published by METI. Where a source was available in both Japanese and English translation, the Japanese version was used.

4.4 Personal reflection

I acknowledge my preconceived knowledge of Japan and its policymaking and history. My interest in Japan and its politics is deeply rooted in me after living there for almost four years, studying at Kobe International University and Waseda University, teaching English to members of the Ministry of Finance and humanitarian NGOs, and interning at the Royal Norwegian Embassy in Tokyo. Through university associations I was able to go to Ishinomaki and Sendai, two cities in northern Japan that were heavily damaged from the earthquake and tsunami in 2011. Although I was there in early 2014, nearly 3 years after, most of the people I spoke with were living in temporary housing, their own homes having been completely demolished by the tsunami. This experience left me with much sympathy and many questions, which in turn led me to research Japan in my ensuing studies within

political science and environmental studies. My personal and academic ties to Japan give me a unique position in Norwegian academia, able to observe policy and events both from the outside and the inside. My knowledge of the Japanese language and culture was especially helpful when reading official reports and news stories, and being able to read the nuances of the text. I do not see my personal experience with Japanese society as a weakness in my research, because, although some might argue otherwise, there is no such thing as completely objective and neutral data (Halperin & Heath 2017). Although some research claims to be completely value-free, some scholars would argue this is impossible, considering we, as humans, all have a connection to our communities and the values, biases and interpretations that entails. As Bengtsson (2015) argues, an important component of qualitative research is the researcher's reflection on their own position within the research and their "pre-understanding" of the topic and/or case in question.

4.5 Conclusion

This thesis is a qualitative study of the Fukushima accident as a case of a focusing event and relies on single case study methods and content analysis to explore the change in Japanese energy policy after the Fukushima accident within the framework of theories on focusing events and framing. I consider my personal experience with Japanese culture and language a strength in my research, as it permits me to understand underlying cultural norms and patterns within the texts analyzed for this research. By using content analysis, this thesis is able to map the word use in the public policy plans, and the general outward goals of the Japanese government relating to energy policy and nuclear power. A significant hinder for this research has been the strict travel and social distancing regulations put in place due to COVID-19, and the research design had to be adjusted accordingly.

5 Analysis and discussion

The previous chapters have provided a basis for understanding the underlying factors for explaining the development of nuclear energy policy in Japan for the past 70 years. Nuclear power has been aggressively promoted as the main strategy to reach the energy self-sufficiency goal by most governments since the mid-50s in Japan. Therefore, it was essential for the government that the framing of nuclear power did not transform into an issue of danger and difficulty, but rather as a “clean”, efficient and safe form of energy production. Especially after the Fukushima accident, this task was important. Through an analysis of the Basic Energy Plans published by METI in 2010, 2014 and 2018 using the frameworks provided by framing theory and focusing events theory as presented in chapter 3, I will answer my research question: *why have we not seen a drastic change in Japanese nuclear energy policy since the Fukushima accident?* This chapter will first analyze the contents of the Plans in relation to their respective contexts, with the 2010 Plan representing energy policy before Fukushima, the 2018 Plan representing the current energy policy in Japan, and the 2014 Plan representing the process of change in policy. It will also go deeper into the expectations raised through the theoretical framework presented in chapter 3, which are as follows:

- The Great Eastern earthquake and the subsequent tsunami was a focusing event.
- The accident should lead to an increased focus on the risk analysis of nuclear power plants.
- The accident should lead to significant policy change within the energy sector of Japan.
- The framing of nuclear power has been so strongly rooted in Japanese politics that not even a shock like the Fukushima accident could shake it. Or,
- Actors involved in energy policy and nuclear development and production has worked hard to quell the rise in anti-nuclear framing of the accident, making sure Japan will not follow in Germany’s footsteps.

5.1 Analyzing the content of the Basic Energy Plans

The Basic Energy Plan of 2010 already presents the three main points of energy security, environmental protection and efficient supply (the three Es). Its 2030 goal involves building 9 “new or additional nuclear plants” by 2020 and more than 14 by 2030 (METI 2010a). It promised shorter operation suspensions for regular inspections, and as mentioned before, this

was to help making the energy supply structure more independent (METI 2010b). The Plan listed renewable energy and nuclear power as the main components of Japan’s primary energy supply, hoping to achieve a 70% zero-emission self-sufficiency ratio by 2030. Nuclear energy and renewable energy were generally mentioned together in the official summary of the Basic Energy Plan of 2010. It is clear that the Plan shows increasing trust in nuclear energy as the main method to achieving higher energy self-sufficiency.

Quite as expected, the Basic Energy Plan of 2014 dedicates significant room for issues related to the Fukushima accident. Whereas the Plan of 2010 mentioned the term “nuclear” (原子) 83 times, the Plan of 2014 mentions the same term 242 times. It should be mentioned that the Plan of 2010 is significantly shorter than its successors, with 66 pages to 2014’s 79 and 2018’s 106 pages. More attention has been dedicated to the future of nuclear power in the latter two Plans, as well as sections acknowledging the shock of the Fukushima accident and the government’s commitment to preventing another accident like it. The current Basic Energy Plan is more renewable energy oriented than any Plan before it, with a higher focus on renewable energy. The table below shows the frequency of key words important to the analysis of the change in nuclear policy pre- and post-Fukushima. The first column contains the terms counted, while the second column contains the English translation of each term. To get the most accurate number, the Japanese versions of the Basic Energy Plans were used. Column three, four and five contains the number of times each key word appeared in the Basic Energy Plans of 2010, 2014 and 2018. The highest and lowest numbers have been highlighted using fill color for a visual effect.

Term	Translation	BEP 2010	BEP 2014	BEP 2018
原子	Nuclear	83	242	193
福島	Fukushima		65	51
再生可能	Renewable	45	76	164
化石	Fossil	35	33	52
石炭	Coal	54	27	37
エネルギー 安全保障	Energy security	22	10	18

Figure 4: frequency of key words in the Basic Energy Plans of 2010, 2014 and 2018

Energy security is central in all three plans, but less so in the 2014 Plan, showing a lower focus on the long-term goals of energy self-sufficiency and a higher focus on rebuilding

Japan's energy production and infrastructure. In other words; energy security was still considered a main goal for Japan in the Plan of 2014, but the situation the country was in after the Fukushima accident and the following years with most nuclear reactors offline led to the Plan having to dedicate more attention to the safety and rebuilding of trust in nuclear power, than on the former goal of energy security. In the current Plan of 2018, energy security is again becoming a larger topic. The Plan of 2018 begins with acknowledgement of the pain caused by the Fukushima accident, while also making it clear that for Japan, there are less options for energy production than for countries "blessed" with fossil fuels.

Diving deeper into the pre-Fukushima energy policy of 2010, the goal in 2010 was to have nuclear power be responsible for producing more than half of Japan's energy. One specific suggestion, which has not aged particularly well, was to extend the time a nuclear power plant is allowed to operate between inspections from 13 to 18 months, by 2030. In addition, the Plan suggests to make the inspections shorter and more efficient, minimizing the time the power plant needs to stay offline. Comparing this to the current energy policy, where nuclear power produces less than 2% of the energy needed in Japan, there is quite a gap between the plans pre-Fukushima and the actual situation post-Fukushima. However, as we have seen, the Plan of 2018 does not seek to end Japan's nuclear adventure, and instead puts more effort into increasing the country's efforts to promote new and strengthened safety measures. The three Es (Energy Security, Economic Efficiency and Environment) is being put as separate to Safety, which is the main focus of the policy, stating that "[s]afety always comes first" (METI 2020). The government is heeding its promise of more transparency regarding power production and explains in detail its efforts to decommission the Fukushima power plant and the management of the contaminated water from the plant. The White Paper is written in such a way as to educate the public on the technicalities and details of energy production, economic issues and measures regarding Fukushima, further showing the government's intent to be more transparent in order to gain back the trust of the public.

5.2 Discussing Japanese energy policy

This section will discuss the expectations raised in chapter 3 in a systematic manner. It will begin with a section discussing the expectations raised through the framework of focusing events theory, and will then move on to the expectations raised using framing theory.

5.2.1 Discussing Fukushima as a focusing event

The expectations to be discussed in this section are as follows:

- The Great Eastern earthquake and the subsequent tsunami was a focusing event.
- The accident should lead to an increased focus on the risk analysis of nuclear power plants.
- The accident should lead to significant policy change within the energy sector of Japan.

The Fukushima accident was a shocking event that rattled the Japanese public and gained immense attention both domestically and abroad. This attention, and the seriousness of the accident, made the Fukushima accident a focusing event – a prime situation for significant policy change. Giger and Klüver explain that “policy change requires that policy entrepreneurs exploit the window of opportunity which opened up in the aftermath of a focusing event” (2012), which braids the theory of framing and policy entrepreneurs into the political situation following a focusing event. In Germany, policy change happened because political actors took immediate action and used the Fukushima accident as an argument for shutting down nuclear power plants and moving away from nuclear power entirely. In Japan, the government in 2011 attempted to use the accident as a catalyst for policy change, seemingly bending to the public outcry for ending the nuclear era of the country. However, rather than achieving policy-change on nuclear energy, there was a change in government – first within the leading party, and then an entirely new government after elections. Then prime minister Naoto Kan resigned from office after the Fukushima accident, as his approval ratings went down after his perceived poor handling of the crisis (The Guardian 2011). Kan had been advocating for less nuclear power, using the Fukushima accident as the “good reason” needed to justify his policy. It did not take many months before a no-confidence vote was announced, and Kan stepped down right before it was put to a vote. His successor within the party was Yoshihiko Noda, but the LDP and Shinzo Abe resumed office in 2012, leading Japan towards an energy future partly fueled by nuclear power.

Among the many countries in the world relying on nuclear power to satiate their energy demand, Germany is the country that perhaps made the most drastic changes to its energy policy following the Fukushima, making it an interesting point of comparison when looking at Japan’s reaction. Miranda A. Schreurs (2013) writes about how the Fukushima accident sparked nuclear policy change in Germany. In all ways, Germany acted more swiftly and

more dramatically to the accident than Japan, despite being thousands of kilometers away. Schreurs uses Kingdon's theory on focusing events to explain how the Fukushima accident sparked such a significant change in policy in Germany. However, whereas Germany's government decided to decommission all nuclear power plants and move away from nuclear power after the Fukushima accident, with the support of its people, having seen the devastation in both Chernobyl and Fukushima, Japan did not react in the same way. It is a stretch to say that Germany has a different view on safety than Japan, nor is it fair to say that Germany values its people's opinions more than Japan. More than anything, the difference in the long-term energy policy and nuclear agenda in the two countries should explain the different outcomes; the German government had already decided to phase out nuclear power eventually, when the country would be able to replace the energy produced by nuclear power plants with other sources. In other words, Fukushima acted as a catalyst for this phase-out to happen sooner than planned, rather than influencing brand new policy. Japan had no such policy before Fukushima, in fact, as we have seen from the Basic Energy Plan of 2010, Japan had long-term goals of relying heavily on nuclear power before the Fukushima accident. This points towards the framing of nuclear power being the reason why the focusing event of the Fukushima accident did not cause any significant change in the Japanese nuclear policy.

Thus, the conclusion is that yes, the Fukushima accident was indeed a focusing event. It sparked increased attention to the risk of nuclear power production, rallying thousands of Japanese people to protest the continued use of nuclear power, seeking alternative methods. The third expectation has not been met; the Fukushima accident did not lead to significant policy change within the energy sector. This statement is based on the fact that Japan continues to focus on nuclear energy as a means to reach energy self-sufficiency. Whereas Germany reacted with a complete shut-down of nuclear power plants, Japan reacted with policy promising more transparency and better safety measures and control to appease the public.

5.2.2 Discussing the framing of nuclear power in Japan

The lack of policy change in energy policy in Japan after the Fukushima accident is better explained through applying framing theory. The expectations raised here are as follows:

- The framing of nuclear power has been so strongly rooted in Japanese politics that not even a shock like the Fukushima accident could shake it. Or,

- Actors involved in energy policy and nuclear development and production has worked hard to quell the rise in anti-nuclear framing of the accident, making sure Japan will not follow in Germany's footsteps.

The Plan of 2018 presenting the country's energy policy for the next few years, and the White Paper of 2019 outlining the current state of energy in Japan, are both clear on the direction of nuclear power; increase and strengthen safety measures, and get the public on board with the continuation of nuclear power production in Japan. It shows no intention of drastic change within the energy policy as we saw in Germany, and I attribute this to the strong framing of nuclear power promoted by the "nuclear village" permeating the Japanese government and Diet. It has been shown before that the "iron triangle" consisting of the LDP, METI, and industry have long been able to keep Japanese energy policy focused on nuclear energy technology and development. Although the party in government changes, the nuclear power policy has remained stable for the past half century, promoting nuclear power as the energy source that will let Japan be self-sufficient and less dependent on imports from other countries.

Although the Fukushima accident was an excellent opportunity for policy entrepreneurs to re-shape the framing of nuclear power within the political elite, this was not achieved. This points to the strong framing already existing within the policy makers. Kingston (2013) suggests that the reason why Fukushima has not been a "game-changing event" is because of the institutions of Japan's "nuclear village" (the utilities, bureaucracy, and Diet) have huge investments at stake. He also suggests that for Japan, having the option to create nuclear weapons is important, despite not having any plans to do so (pp. 520). Kingston therefore suggests that the framing of nuclear energy has been so powerful and deeply rooted that not even a crisis like Fukushima could shake it. Many scholars point to the strong ties between the Japanese government and the industry, suggesting that Japanese policy is heavily influenced by what benefits the influencing industries (Kingston 2012; Feldhoff 2019). This influence definitely has an important role to play in the framing of nuclear energy.

As framing inherently is how an issue is presented, the way the Basic Energy Plans talks about nuclear power shows the image the Japanese government want the public to see and believe. When looking at the Plan from 2010 and 2018, they are both positive towards nuclear power as a source of energy for Japan, and the main difference is a significant

increase in attention to safety measures. This alone has not been able to sway the public opinion on nuclear power, however it does show an intent to be more transparent about the production of nuclear power, and more than anything it shows that METI knows it is necessary to show the public their good intent.

5.3 Conclusion

This chapter has analyzed the three latest Basic Energy Plans, with the Basic Energy Plan of 2010 representing pre-Fukushima energy policy, and the Basic Energy Plan of 2018 representing the current energy policy. The Basic Energy Plan of 2014 works as an insight into the process of change between pre-Fukushima policy and current energy policy. By analyzing the language used in the Basic Energy Plans, as well as how it has changed over the past three revisions, we can see that the Fukushima accident has become an important part of the Basic Energy Plan and has become a driver for METI to show the public that their intention is to heighten transparency and improve the public's trust in METI and the nuclear energy industry.

This chapter has also discussed the Fukushima accident as a focusing event, using the expectations raised in chapter three as points of discussion. It has confirmed that the Fukushima accident received increased attention and focus among the public and the media, creating good conditions for policy change. However, as seen earlier in this thesis, the actors attempting to make such changes by using the Fukushima accident as a reasoning, did not succeed. This chapter then moved on to repeat the expectations raised by framing theory to explain the lack of change in energy policy, despite the focusing event of the Fukushima accident. This chapter concludes that the framing of nuclear power as a positive part of Japanese energy sector is deeply rooted within Japanese politics. In addition, the actors within the government (then Prime Minister Naoto Kan and the policymakers who supported his views) were not able to steer Japan from its strict nuclear course.

6 Conclusion

This thesis has used the theories on focusing events and framing to answer the research question *why have we not seen a more drastic change in the framing of nuclear power in Japan since the Fukushima accident?* The research question is posed after seeing the extreme changes in nuclear policy in other parts of the world after the Fukushima accident. This thesis has explored the history of nuclear power and energy policy in Japan the past 60 years, and has analyzed the energy policy right before the Fukushima accident as well as the current policy, using the Basic Energy Plans of 2010 and 2018 as a base for research. Having explored the dimensions of focusing events and exploitation of these as a way to influence policy change, I conclude that there was an attempt at such an exploitation by the Japanese government in 2011, but it ultimately cost the Prime Minister his position in the party, and the party was not re-elected in the election in 2012. Instead, I turn to framing theory to explain the strong positive framing of nuclear energy, which has been developed over decades, and cultivated by the so-called “nuclear village”, to explain why Fukushima was not shocking enough to force a significant discussion on reforming Japanese nuclear policy. This is not to say that there has been no change at all after the Fukushima accident, as there certainly has been. However, we have not seen a drastic change in the government’s long-standing methods to achieve energy self-sufficiency, as nuclear power is still considered to be an important part of the energy mix in Japan. There is, however, a more ambitious plan to develop and include more renewable energy generation to diminish the need for import of foreign fossil fuels.

As evidence presented in the previous chapter shows, there has been little significant change in Japan’s nuclear energy policy following the Great Eastern Earthquake in 2011, contradicting the general expectation presented using focusing events theory of how the Fukushima accident should have influenced change in Japan’s energy policy. Giger and Klüver (2012) argues that the only way focusing events will lead to policy change, is if there are entrepreneurs willing to use the public attention to change the framing of the issue, and the policy resulting from it. This ties back into the conclusion that the framing of nuclear energy as the best method for Japan to reach energy self-sufficiency is so strong and deeply rooted that not even a focusing event like the malfunction in the Fukushima Daichi and Daini nuclear reactors were able to shake it.

This thesis has explored the Fukushima accident as a single case study of a focusing event, and has used framing theory to further explain why the expectations we have of focusing events as catalysts for policy change did not occur. Through the analysis of the Basic Energy Plans of 2010, 2014 and 2018, we have seen how the story presented began as nuclear power as an energy source supposed to transform Japan from an energy importer to a self-sufficient nation less dependent on foreign powers. After the Fukushima accident, however, the focus has been largely on safety measures, in an attempt to increase the public's trust in the nuclear industry, to allow the country to keep producing nuclear energy. The increased global focus on environmental degradation and global climate change has also prompted an increased focus on renewable energy in Japan, and nuclear power is no longer the only big alternative to fossil fuels like coal and oil. Nevertheless, the country has no intention of moving away from nuclear power and has instead invested time and resources into framing nuclear power as a necessary venture, into which many resources are allocated for increased safety.

As a case study of a focusing event, the Fukushima accident is very interesting due to the surprisingly little change seen in nuclear energy policy after it occurred. Framing theory has helped explain this lack of change, attributing it to a deep and long-running framing within the policymakers and culture. Combining these two theories has given great insight into the process of policymaking after the Fukushima accident, and explains why Japan did not make drastic changes to its nuclear energy policy like other nuclear power nations like Germany. It shall be very interesting to see where Japanese nuclear energy policy moves in the future.

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