

JAERO has been conducting “The annual opinion survey on peaceful use of nuclear energy” since 2006. The 15th survey was conducted in October 2021 and received responses from 1,200 people nationwide. Before summarizing the survey results, let us explain the Japan’s energy policy as the basic background.

Japan's energy policy

➤ The government’s basic energy policy

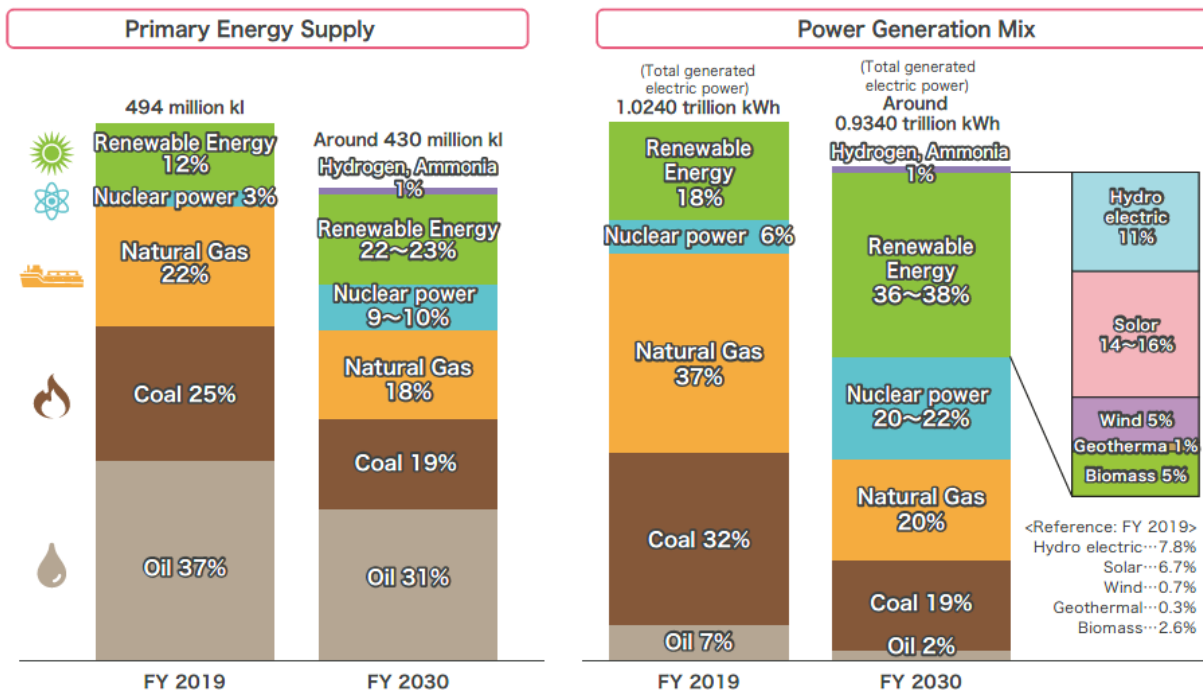
On the premise of **Safety**, we are making efforts to simultaneously achieve **Energy Security** (self-sufficiency rate), **Economic Efficiency**, and **Environment** (**S+3E**).

Japan is a country with limited natural resources. No one source of energy is superior in every way. Therefore, it is essential to create a multi-layered energy supply structure where each energy resource is fully exploited for its best performance and compensation for the disadvantages of other resources.



➤ The goal for ideal energy supply and demand structure

The figure shows the outlook for energy supply and demand in FY2030



Source: “Comprehensive energy statistics of Japan”; 2019 confirmed figures published by the Agency for Natural Resources and Energy, outlook for energy supply and demand in FY2030 (related materials)
 * The sum of the values shown may not be 100% in some cases for a reason of round values.
 * Renewable energy here, including geothermal power, wind power, and solar power, but not hydroelectric power, includes unused energy.

➤ Strategic energy plan of Japan https://www.enecho.meti.go.jp/en/category/brochures/pdf/japan_energy_2021.pdf

Summary

Negative opinions on the "immediate abolition" of nuclear power use and the restart of nuclear power plants have been decreasing over the past five years.

~The results of opinion survey on peaceful use of nuclear energy~

Research objectives

Since public opinions on nuclear power tend to fluctuate following accidents or disasters, the purpose of the survey is to monitor nationwide opinions and to accurately grasp the trends of public opinions on nuclear power.

Survey summary

➤ **Result 1 : Opinions on future use of nuclear power generation (P.3)**

About 50% of the respondents answered, "There is no other way to use nuclear power for a while, but we should gradually discontinue its use."

From 2016 to 2021, the number of respondents saying "the use of nuclear power should be discontinued immediately" decreased.

➤ **Result 2 : Opinions on restarting nuclear power generation (P.4)**

From 2017 to 2021, the number of negative opinions against restarting nuclear power plants decreased. Between 2017 and 2021, the ratio of positive and negative opinions regarding "stable supply of electricity" and "confirmation of conformity with new regulatory standards" and "impact on the Japanese economy" reversed, and the positive opinions became higher.

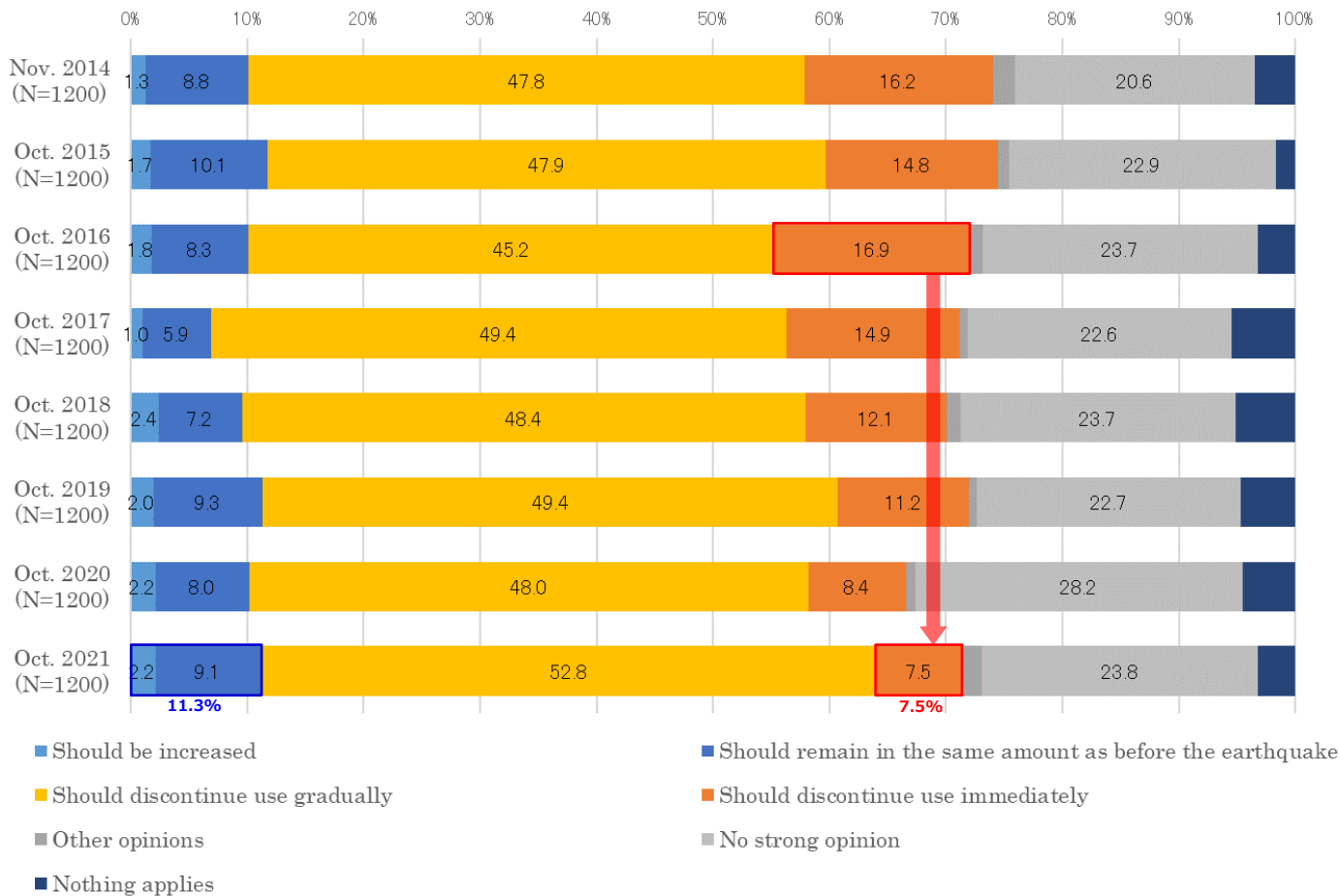
➤ **Result 3 : Impression of nuclear energy (P.5)**

From 2018 to 2021, the numbers for "danger" and "anxiety" decreased.

From 2017 to 2021, the numbers for "unreliable" decreased.

From these results, it might be safe to say that opinions against nuclear power tend to decrease from 2016 to 2021. It is probably due to the decrease of the amount of information on events and news related to nuclear power.

Q8. What do you think of nuclear power generation in Japan in the near future? Choose the one closest to your opinion.



➤ The largest group that chose the opinion saying that nuclear power generation may be maintained for a while but should be reduced was about 50%.

“No strong opinion” follows by 25%

The percentage of "should discontinue use immediately" is almost the same as the combined percentage of "should be increased" and "Should remain in the same amount as before the earthquake" at 10%.

● nuclear power generation should discontinue use immediately

It can be confirmed that nuclear power generation is recognized as a technology that must be used for a while.

● No strong opinion : Maintaining 20-30%

● "Should discontinue use immediately"

The percentage of "Should discontinue use immediately" decreased in

comparison to the results of FY2016 and FY2021*. * Statistically significant difference is confirmed by χ^2 test

The proportion of the opinion for "Should discontinue use immediately" decreased, and took on a smaller value than that of "should be increased" and "Should remain in the same amount as before the earthquake".

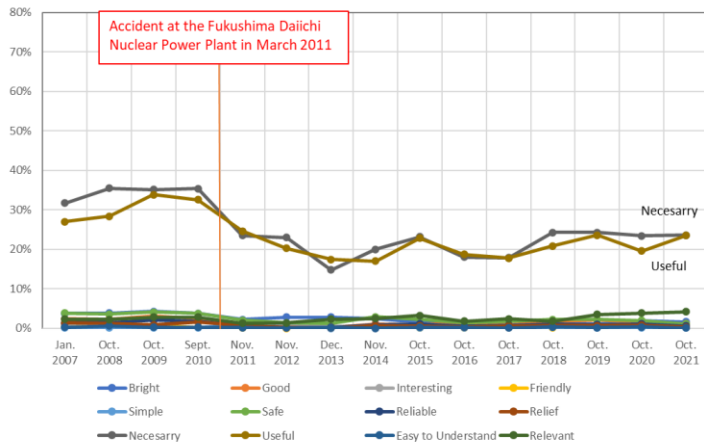
Q9-1. Nuclear power plants that have passed the confirmation of compliance with the new regulatory standards by the Nuclear Regulatory Commission will be restarted with the approval of the local government.
Choose everything that fits your opinion about the resumption.

Affirmative opinions	%		%	negative opinions
Promotion of nuclear power plants restarting is approved by the public.	2.9	2017	55.1	There is no public approval to proceed with the restart.
	4.6	2018	49.3	
	2.7	2019	50.3	
	3.5	2020	44.7	
	4.1	2021	46.3	
The government and the electric power companies who have been carrying out the policy should take the initiative in restarting nuclear power plants.	5.0	2017	19.5	Permission for the restart should be given by the people who use electricity.
	7.8	2018	18.5	
	6.3	2019	18.9	
	6.3	2020	16.3	
	9.7	2021	14.3	
Restart is necessary for stable electricity power supply.	18.6	2017	24.7	No need to restart because of enough electric power supply at present.
	26.7	2018	18.7	
	26.6	2019	16.5	
	25.3	2020	17.1	
	30.0	2021	13.6	
Restart is necessary for the tackling of global warming.	9.8	2017	23.7	No need to restart because of global warming countermeasures.
	12.7	2018	18.7	
	14.4	2019	17.7	
	13.8	2020	16.5	
	15.8	2021	15.8	
Restart is necessary because of its huge impact on Japanese economy.	9.5	2017	17.3	No need to restart because stopping nuclear power will not have any significant impact on Japanese economy.
	13.0	2018	13.2	
	12.3	2019	12.1	
	11.3	2020	10.1	
	14.5	2021	8.9	
Restart after confirming compliance with the new regulatory standards should be permitted.	14.3	2017	20.5	Restart should not be permitted even after the confirmation of compliance with the new regulatory standards.
	17.9	2018	15.8	
	17.6	2019	14.5	
	16.5	2020	11.8	
	23.7	2021	11.0	
Restart based on sufficient measures against natural disasters such as earthquakes and tsunamis may be permitted.	4.9	2017	34.5	Restart should not be permitted due to insufficient countermeasures against natural disasters such as earthquakes and tsunamis.
	6.3	2018	29.8	
	6.4	2019	29.0	
	5.7	2020	25.7	
	6.8	2021	24.3	
Restart with well-developed disaster prevention systems should be permitted.	2.9	2017	30.7	Restart should not be permitted because disaster prevention systems are inadequate.
	4.5	2018	24.7	
	3.8	2019	26.5	
	3.9	2020	21.3	
	4.4	2021	22.0	
Restart may be permitted because of the low probability of another huge accident.	1.9	2017	34.1	Restart should not be permitted because there remains possibility for another huge accident.
	3.3	2018	30.1	
	2.6	2019	28.3	
	2.6	2020	26.3	
	2.8	2021	24.8	
Restart should be permitted even without effective plans for disposal of radioactive waste.	2.2	2017	41.4	Restart should not be permitted in situations where there is no effective plan for disposal of radioactive waste.
	2.8	2018	35.9	
	2.3	2019	36.0	
	2.7	2020	35.5	
	2.1	2021	36.4	
Restart should be permitted even if the decommissioning of the Fukushima Daiichi nuclear power plant is uncertain.	2.7	2017	43.7	Restart should not be permitted in situations where the decommissioning of the Fukushima Daiichi nuclear power plant is uncertain.
	2.7	2018	35.2	
	2.9	2019	38.0	
	2.5	2020	35.6	
	3.0	2021	34.0	

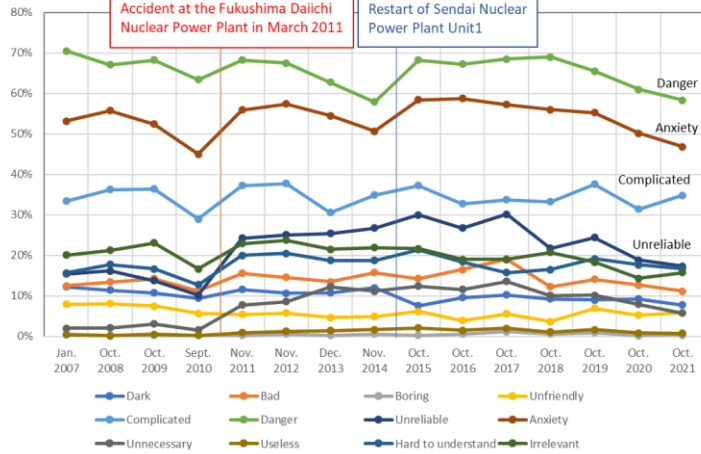
- Negative one-sided opinions with high response rates must be considered seriously.
- For the competing opinions relating to stable power supply and conformity with new regulatory standards and impact on the Japanese economy, the proportion of positive opinions became higher than that of negative opinions between 2017 and 2021.
- Negative opinions against restarting nuclear power plants in many question items decreased between 2017 and 2021.

Q1 What comes to your mind when you hear “nuclear energy”?
Choose everything close to your opinion.

Affirmative Impression



Negative Impression



	Jan. 2007	Oct. 2008	Oct. 2009	Sept. 2010	Nov. 2011	Nov. 2012	Dec. 2013	Nov. 2014	Oct. 2015	Oct. 2016	Oct. 2017	Oct. 2018	Oct. 2019	Oct. 2020	Oct. 2021
Bright	3.8	3.9	4.3	3.8	2.2	2.8	2.8	2.4	1.6	1.3	0.8	1.4	1.1	1.9	1.7
Good	2.4	2.3	3.1	2.4	1.3	0.9	0.3	1.1	0.9	1.5	0.9	1.8	2.2	1.6	1.2
Interesting	0.6	0.6	0.8	0.3	0.6	0.6	0.5	0.3	0.6	0.4	0.2	0.3	0.4	0.5	0.4
Friendly	0.3	0.6	0.7	0.3	0.2	0	0.2	0.2	0.2	0.1	0.3	0.2	0.3	0.3	0.3
Simple	0.2	0.1	0.2	0.2	0.7	0.2	0	0.1	0.1	0.1	0.3	0.3	0.1	0.2	0.2
Safe	3.9	3.6	4.1	3.8	2.1	1.4	1.2	2.9	2.2	1.5	1.8	2.2	2.3	2.0	1.2
Reliable	1.4	1.4	2.1	1.8	0.8	0.3	0.3	0.9	1.1	0.5	0.8	1.1	0.9	1.2	0.6
Relief	1.4	1.3	0.9	1.6	0.8	0.2	0.1	0.7	0.6	0.4	0.6	0.8	0.7	0.8	0.3
Necessary	31.7	35.5	35.1	35.4	23.5	23	14.8	20	23.2	18	17.9	24.3	24.3	23.4	23.6
Useful	27	28.4	33.8	32.6	24.6	20.3	17.4	17	22.8	18.7	17.8	20.9	23.6	19.6	23.5
Easy to Unders	0.3	0.6	0.3	0.3	0.2	0.1	0.2	0	0.3	0.3	0.1	0.4	0.2	0.3	0.1
Relevant	2.3	2.2	2.8	2.8	1.3	1.4	2.3	2.5	3.3	1.8	2.4	1.8	3.5	3.8	4.2
	Jan. 2007	Oct. 2008	Oct. 2009	Sept. 2010	Nov. 2011	Nov. 2012	Dec. 2013	Nov. 2014	Oct. 2015	Oct. 2016	Oct. 2017	Oct. 2018	Oct. 2019	Oct. 2020	Oct. 2021
Dark	12.3	11.4	10.8	9.4	11.6	10.7	10.8	12	7.6	9.6	10.3	9.3	9.0	9.3	7.8
Bad	12.5	13.4	14.3	11.3	15.6	14.6	13.5	15.8	14.3	16.5	19.1	12.3	14.1	12.7	11.2
Boring	0.5	0.3	0.3	0.3	0.3	0.6	0.3	0.6	0.3	0.6	1.2	0.6	0.9	0.2	0.3
Unfriendly	7.9	8.1	7.5	5.7	5.4	5.8	4.7	4.9	6.2	3.9	5.6	3.7	6.9	5.3	5.8
Complicated	33.4	36.3	36.4	29	37.3	37.8	30.6	34.9	37.3	32.8	33.8	33.3	37.6	31.4	34.8
Danger	70.5	67.1	68.3	63.4	68.3	67.5	62.8	57.9	68.3	67.3	68.5	69	65.5	61.0	58.3
Unreliable	15.4	16.2	13.8	10.2	24.3	25.1	25.4	26.8	30	26.8	30.2	21.8	24.4	18.8	17.3
Anxiety	53.2	55.8	52.4	45	55.9	57.4	54.5	50.7	58.4	58.8	57.3	56	55.3	50.2	46.8
Unnecessary	2	2.1	3.1	1.6	7.8	8.6	12.3	11.2	12.4	11.6	13.6	10.1	10.2	7.9	5.8
Useless	0.4	0.2	0.5	0.3	0.9	1.3	1.4	1.7	2.1	1.5	2	1.1	1.7	0.8	0.8
Hard to unders	15.7	17.8	16.7	12.8	20	20.5	18.8	18.8	21.4	18.4	15.8	16.5	19.2	17.7	16.8
Irrelevant	20.1	21.3	23.1	16.7	22.9	23.8	21.5	21.9	21.7	19	19	20.8	18.3	14.3	15.8

➤ The impressions of nuclear energy had been negative even before the accident at Fukushima Daiichi Nuclear Power Plant, and among them, “danger” and “anxiety” exhibited high proportions both before and after the accident.

➤ Notice that the negative impression “Danger” and “anxiety” decreased between 2018 and 2021, “Unreliable” decreased between 2017 and 2021.

The reason for decrease might be in accordance with the decrease of the amount of information on news related to nuclear power.

Major events and news relating that may affect public opinion about nuclear power.

2006	August	Formulation of "Nuclear Nation Plan" in Japan as a concrete measure to realize the Nuclear Policy Charter
2007	July	Tokyo Electric Power Co., Inc. (TEPCO) Kashiwazaki-Kariwa Nuclear Power Plant shut down due to the Niigata Chuetsu-offshore Earthquake
2008	December	Accident of the glass melting furnace in the Japan Nuclear Fuel reprocessing facility for high-level waste liquid vitrification
2011	March	Accident at the Fukushima Daiichi Nuclear Power Plant of TEPCO
2012	May	Regular inspection of Tomari Nuclear Power Plant Unit 3, Hokkaido Electric Power that caused the shut down of all domestic nuclear power plants
	September	Formulation of "Innovative Energy / Environmental Strategy"
	December	Review on a zero basis
2013	April	Decision of the power system reformation plan by the government
	September	Regular inspection of Ohi Power Plant Unit 4, Kansai Electric Power that caused the shut down of all domestic nuclear power plants
2014	April	Decision of "Basic Energy Plan (4th)" by the government
2015	August	Restart of Sendai Nuclear Power Plant Unit 1, Kyushu Electric Power for the first time under the enforcement of new regulatory standards
	December	The 21st Conference of the Parties to the United Nations Climate Change Conference (COP21) in Paris, France
2017	June	Northern Osaka earthquake: no abnormality in nuclear facilities near the epicenter
	September	Power outage caused by Hokkaido Eastern Iburi Earthquake: secure power supply from Tomari Nuclear Power Plant in spite of external power loss
2018	July	Decision of "Basic Energy Plan (5th)" by the government
2019	September	Power outage caused by Typhoon No. 15 (Faxai) that landed with the strongest force in the history of observation, and caused enormous damage mainly in Chiba prefecture
2020	October	Declared to aim for carbon neutrality by 2050
2021	April	Decided to release treated water from Fukushima Daiichi Nuclear Power Station to the ocean.

Confirmation of changes in public opinion after the 2011 Fukushima accident and 2015 restart of Sendai NPP.

Outline of the survey method

- Target of the survey : 15 to 79 years-old as of the survey date, nationwide
- Sample : 1,200 residents randomly selected from a residential map database
- Area distribution of sampling : 200 points (6 sample per point) proportionally allocated to each layer by the gallery size of city/town
- Survey Method : omnibus survey/Self-administered visit survey
- Time of the survey
Jan. 2007, Oct. 2007, Oct. 2008, Sep. 2010, Nov. 2011, Nov. 2012, Dec.2013, Nov. 2014, Oct. 2015, Oct. 2016, Oct. 2017, Oct. 2018, Oct. 2019, Oct. 2020, Oct. 2021

Where to present the results of the survey

Report of the survey is available at the JAERO's website
The report of the survey in 2021 (published in Feb. 2022)

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**Report of the survey is available
at the JAERO's Website.
(Japanese only)**

https://www.jaero.or.jp/data/01jigyou/tyousakenkyu_top.html

Japan Atomic Energy Relations Organization (JAERO)

JAERO is a general foundation that provides information to the general public and press, education, local government. The goal of JAERO is to disseminate knowledge on peaceful use of nuclear power energy. JAERO was established in July 1969, currently conducts public opinion survey annually, holds seminars and symposia for the wide public, provides workshops on radiation at various educational institutions by dispatching experts. JAERO serves as a general foundation for cooperation with school education, the local community, and the media.

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