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Citizens' Nuclear Information Center

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Citizens heap criticism on the draft revisions to the Strategic Energy Plan

On May 16, the Strategic Policy Committee of the Advisory Committee for Natural Resources and Energy under the Ministry of Economy, Trade and Industry (METI) released the draft for the 5th Strategic Energy Plan. The review is open for public comment for the next month and following that, a final draft will be compiled which is expected to be approved by Cabinet around summer. Once Cabinet has approved the final draft, it will be reported to Parliament.

The Basic Act on Energy Policy (which came into effect in 2002) stipulates that the Strategic Energy Plan should be reviewed every three years. Energy policy is stated to be an important government issue but, by law, parliamentary deliberation is not necessary.

The Basic Act on Energy Policy is lawmaker-initiated legislation which was drafted by a Liberal Democratic Party (LDP) member of parliament with the aim to ensure that climate change countermeasures were properly implemented. At the time the legislation was written, construction of 14 new nuclear reactors was planned and one of the aims of the legislation was to make sure that these constructions proceeded smoothly. In 2006, METI compiled the Nuclear Energy National Plan, making even clearer that Japan's climate change countermeasures were to be based on expansion of nuclear power generation.

However, the situation changed immensely due to the earthquake and tsunami that occurred on 11 March 2011 and the ensuing hydrogen explosion and nuclear accident at Fukushima Daiichi, followed by the passing of the Feed-In-Tariff Law for renewable energy the following August. The Democratic Party, in power at the time, announced a policy of nuclear phase-out by the 2030s and produced the "Innovative Strategy for Energy and the Environment", planning to use this as the base for revising the Strategic Energy Plan. But the opposition from METI and industry groups was fierce and this plan was defeated. Then the LDP came back into power.

As a result of all these factors, the 4th Strategic Energy Plan (compiled in 2014) stated that while renewable energy would be promoted, nuclear

and coal-powered generation were also 'important baseload energy sources.' The following year METI released the Long-term Energy Supply and Demand Outlook which set the following electricity generation targets for 2030-nuclear: 20-22%, renewables: 22-24%, coal: 26%, LNG: 27%. General utilities use the 'important baseload energy' designation for their nuclear power plants, even if they are not operating, and because the Japanese electricity industry has not been unbundled, the utilities still control electricity transmission and they are able to refuse or limit grid connections for renewable energy sources.

Discussions on revisions to the Energy Plan started last year but from the beginning it was assumed that the vision for 2030 would not change very much. Furthermore, METI set up the Round Table for Studying Energy Situations to map out policy directions towards 2050. Their discussions were compiled into recommendations which were released on 11 April and were also included in the revisions to the Energy Plan.

Energy transition and decarbonization towards 2050

The 5th Strategic Energy Plan draft includes the above recommendations in an added chapter. Chapter 3 is titled: 'Challenges of energy transition towards 2050.' In terms of contents, 'energy transition and decarbonization' are promoted but the uncertainty of political and economic factors makes it difficult to make exact predictions, so the plan attempts to lay out 'an ambitious double-track scenario where all options are pursued.' In any case, making renewable energy economically viable and the main

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power source is a major thrust. This is certainly the right direction, but there is no mention of concrete targets or means such as the actual percentage of all generated power the 'main power source' should be or clear mechanisms to actually make renewables economically viable.

On the other hand, regarding nuclear power, the Plan states that 'as a country that experienced the TEPCO Fukushima Daiichi nuclear accident, we are expected to reduce our dependency on nuclear power as much as possible while pursuing the potential of renewable energy.' This surely means that renewable energy must be made 100% reliable. However, while saying that dependence on nuclear power must be reduced, the Plan designates nuclear power as a 'practical-level carbon-free option,' leaving open the possibility to develop it in the future.

In the Paris Agreement (2016), Japan has committed to cutting carbon emissions by 80% by 2050. According to the latest report of Japan's Greenhouse Gas Inventory (National Institute for Environmental Studies), carbon emissions for fiscal 2016 were 1,204.3 million tons. Of this, 95% is emitted from burning fuel, and of this, 44% is emitted by the energy industry, 23% by the manufacturing and construction industry and 17.2% by the transport industry. Thus, in order to cut overall emissions by 80%, it is necessary to reduce energy industry emissions to zero. Despite this, the Plan states that in the transition period until decarbonization becomes a reality, internally and externally, fossil fuel would be a main energy source. Such a backward-looking posture.

There should be a switch to a zero nuclear policy

In order to achieve 'energy transition and decarbonization,' the plan is aiming to achieve the energy mix which was set for 2030. Concretely these percentages are: 22-24% renewables, 20-22% nuclear and 26% coal-fired. The position of nuclear and thermal coal-fired power generation remains 'an important baseload power source,' despite claims that this position for nuclear and thermal energy is blocking the expansion of renewables.

As for nuclear power, nothing has changed from the 4th Plan - 're-establishment of nuclear policy' is still called for, concrete measures including: Efforts toward restoration and reconstruction of Fukushima; untiring pursuit of safety; expanding storage capacity of spent fuels; drastic reinforcement of measures for final disposal of high-level radioactive waste; and the promotion of the nuclear fuel cycle policy, including starting operations at the Rokkasho Reprocessing Plant. This list of policies, all of which ignore the will of the citizens and ignore economic rationality, are in logical contradiction to the stated aim of 'reducing dependence on nuclear power as much as possible.'

If we look squarely at the fact that our lives were not disrupted when all nuclear reactors were shut down in the period following the Fukushima Daiichi accident, it is obvious that 'Zero Nukes' is possible. Right now, with so few reactors actually restarting, we have a golden opportunity to switch back to zero nukes.

<Hideyuki Ban, CNIC Co-Director>

Commentary:

Why wasn't TEPCO bankrupted?

The nuclear accident at Tokyo Electric Power Company's (TEPCO's) Fukushima Daiichi Nuclear Power Station (FDNPS) has left TEPCO under a huge pile of debt. At the time, there were arguments in favor of dissolving TEPCO, the liable party, but due to the Japanese government's generous support, the company continues to exist to this day. In this article, we attempt to throw light on the reasons why TEPCO was not bankrupted.

Act on Compensation for Nuclear Damage

Japan's Act on Compensation for Nuclear Damage states in Section 3, "Where nuclear damage is caused as a result of reactor operation etc. during such operation, the nuclear operator who is engaged in the reactor operation etc. on this occasion shall be liable for the damage, except in the case where the damage is caused by a grave natural disaster of an exceptional character or by an insurrection." In Section 4, the Act stipulates that "Where nuclear damage is covered by the preceding section, no person other than the nuclear operator who is liable for the damage pursuant to the preceding section shall be liable for the damage." Thus while imposing on the nuclear power operator unlimited no-fault liability with liability concentrated in its hands, it also provides exemptions in the form of "a grave natural disaster of an exceptional character or by an insurrection." At the same time, Section 16

provides for necessary government assistance to pay compensation, and Section 17 states that in the case of "a grave natural disaster of an exceptional character or by an insurrection" the government "shall take necessary measures to relieve victims and to prevent the damage from spreading."

What became a problem at the time of the FNDPS accident was whether or not it had occurred due to a grave natural disaster of an exceptional character. From the outset, the government indicated the stance of not applying the exemption, stating, "As the nuclear power operator, TEPCO should bear liability for damage caused by this nuclear power plant accident." TEPCO insisted that the accident was due to "a grave natural disaster of an exceptional character" and that "there is a margin for judging that an exemption be invoked," but eventually accepted liability.

Financing immediately after the accident

Since the exemption was not invoked, TEPCO faced unlimited compensation for the damage caused by the FNDPS accident. In 2011, the government estimated that compensation alone would be of the order of 4.5 trillion yen.

TEPCO's cash and deposits as the accounts were closed at the end of the third quarter of 2010 (December 31, 2010) were 366.5 billion yen. With company bond redemptions of 500 billion yen coming up in FY2011 and the need to procure fuel worth 800 billion yen, financing from the market was fraught with difficulties after the FNDPS nuclear accident, bringing TEPCO close to bankruptcy.

TEPCO's cash and deposits leaped up to 2.2 trillion yen at the close of accounts for FY2010 (March 31, 2011). This was almost all in long-term loans. According to news reports at the time, 1.865 trillion yen was provided in loans of three to ten years, with no warranty and at the same interest as before the accident, by eight financial institutions, including the Sumitomo Mitsui Banking Corporation (600 billion yen), the Mizuho Corporate Bank (500 billion yen) and the Mitsubishi UFJ Bank (300 billion yen). It is said that in the background to this was the statement by the then deputy minister of the Ministry for the Economy, Trade and Industry (METI), Kazuo Matsunaga, that "We must also not shirk responsibility. I would also like to see support from financial institutions."

TEPCO thus managed to overcome the problems of March 2011, but even after that, arguments insisting that TEPCO be declared bankrupt and go into legal liquidation continued. However, in the end, it was decided to allow the company to survive from the viewpoint that if TEPCO went into legal liquidation compensation to those affected by the nuclear accident would be delayed.

Especially problematical were the electric power bonds issued by TEPCO. The Electricity Business Act allows TEPCO and the other power business operators to issue company bonds with "general collateral" that make it possible to prioritize debt repayment to other creditors. In other words, if a company goes bankrupt, those financial institutions that originally stood to make profits from the purchase of the company bonds would receive first priority in debt repayment, whereas compensation for those affected by the nuclear accident would be on the same pecking order as repayment for other debts (e.g. loans, etc.).

TEPCO's net assets as of March 31, 2011 were 1.6024 trillion yen. It was clear that the estimate for compensation at the time of 4.5 trillion yen would put TEPCO in a situation of net capital deficiency. The balance of company debt at this time was 4.4251 trillion yen. If TEPCO were to be declared bankrupt at that time, the company debt would first have to be repaid, after which other debts, including the liabilities to those affected by the nuclear accident, would be

paid out.

There was also the option of allowing TEPCO to go bankrupt, and having discharged the debts the government would, in a separate deal, then pay out compensation from the national treasury to those affected by the nuclear accident. However, since the accident was still ongoing, liquidating TEPCO might pose obstacles to the work of the post-accident cleanup. Considering this, it is not unreasonable that the government at the time decided to allow TEPCO to continue to exist. However, by allowing TEPCO to survive, the stockholders who had invested in TEPCO and the financial institutions that had provided funds, i.e. the investors who bore a certain risk for the sake of profits, suffered no losses, and in their place the greater population of Japan overall would take on the burden. That was how the current TEPCO survival scheme was born.

The TEPCO survival scheme

In August 2011, the government enacted the Nuclear Damage Compensation Facilitation Corporation Act to avoid a TEPCO bankruptcy. The scheme inherent in the act is as follows:

- 1) The government shall establish the Nuclear Damage Compensation Facilitation Corporation (later reorganized as the Nuclear Damage Compensation and Decommissioning Facilitation Corporation in August 2014) as the facilitating organization handling compensation payments and so on in the case of nuclear damage, and nuclear power operators are to establish a reserve fund (general contributions) to provide compensation.
- 2) The Corporation shall levy a special contribution from the nuclear operator that caused the accident (in this case TEPCO).
- 3) The Corporation shall provide financial facilitation (granting of funds, acceptance of stocks, loans, purchase of company bonds, etc.) when the Corporation's facilitation is required for compensation by the nuclear operator. To procure the funds necessary for financial facilitation, the Corporation can issue government-guaranteed compensation bonds to borrow money from financial institutions.
- 4) In the case that special support is required from the government, the Corporation and the nuclear operator shall determine the amount of compensation, prepare a "special business plan" that sets out the content and value of the financial support, policies for business management rationalization and so on, and receive approval from the relevant ministers (the Cabinet Office and METI). Following approval, the government will allocate government bonds to the Corporation, the necessary funds then being granted to the nuclear operator by the Corporation.
- 5) The Corporation shall pay into the national treasury money up to the amount of redemption of the government bonds.

Based on this scheme, TEPCO and the Corporation devised a Special Emergency Business Plan in November 2011, following up with a Comprehensive Special Business Plan in May 2012, a New Comprehensive Special Business Plan in January 2014 and a New-New Comprehensive Special Business Plan in May 2017. On the basis of these business plans, the government established a government bond allocation limit of 13.5 trillion yen (including decontamination and mid-term storage of radioactive wastes, etc. as well as compensation) for the Corporation and it was decided to provide a grant of 10.2006 trillion yen to TEPCO. In addition to this, the Corporation accepted one trillion yen in TEPCO stocks in July 2012 (making the Corporation the holder of 54% of TEPCO stocks, which would increase to 80% if class B priority stocks were converted to class A stocks). Furthermore, besides the above, TEPCO also estimates that that 8 trillion yen will be needed for decommissioning and as

countermeasures for contaminated water. As a result, the costs involved in dealing with the FNDPS nuclear accident are therefore currently estimated to be 21.5 trillion yen.

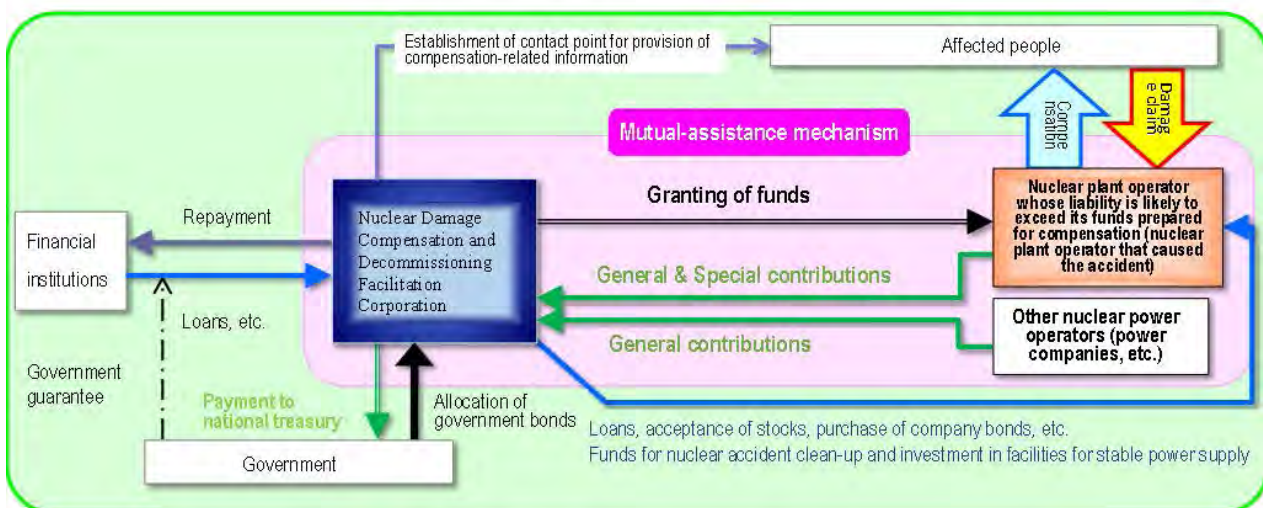
Of this, it is presumed that the 4 trillion yen estimated for decontamination costs will be eventually supplemented by profits accruing from the sale of TEPCO stocks, the 1.6 trillion yen costs for intermediate storage facilities will be paid from the national treasury, and that 3.7 trillion yen of the total compensations will be paid by nuclear power operators from the general contributions, while 0.24 trillion yen will be borne by imposing a power distribution consignment charge on power companies that have entered the market recently due to deregulation of the power market.

<Hajime Matsukubo, CNIC>

Table 1. TEPCO and the Government’s Burden Sharing in the Overall Funding to be Secured for the Fukushima Nuclear Accident and Related Work (Reference material) [T=trillion]

	Decommissioning and contaminated water	Compensation	Decontamination	Intermediate storage	TOTAL
Amount	2.0T yen ↓ (+ 6.0T yen) 8.0T yen	5.4T yen ↓ (+ 2.5T yen) 7.9T yen	2.5T yen ↓ (+ 1.5T yen) 4.0T yen	1.1T yen ↓ (+ 0.5T yen) 1.6T yen	11.0T yen ↓ (+ 10.5T yen) 21.5T yen
	Limit of government bond allocation: 9T yen → 13.5T yen				
TEPCO	2.0T yen ↓ (+ 6.0T yen) 8.0T yen (Assumes managed reserve fund)	2.7T yen ↓ (+ 1.2T yen) 3.9T yen	2.5T yen ↓ (+ 1.5T yen) 4.0T yen (Assumes profits from sale of stock)		7.2T yen ↓ (+ 8.7T yen) 15.9T yen
Major power companies		2.7T yen ↓ (+ 1.0T yen) 3.7T yen			2.7T yen ↓ (+ 1.0T yen) 3.7T yen
New power companies		0.24T Yen			0.24T yen
Government	(R&D support)		(Profits from sale of stock)	1.1T yen ↓ (+ 0.5T yen) 1.6T yen (Assumes energy budget)	1.1T yen ↓ (+ 0.5T yen) 1.6T yen

Figure 1: TEPCO Financing



CNIC Statement :**Liquidate TEPCO!**

April 11, 2018

On April 5, 2018, the government's Nuclear Damage Compensation Dispute Resolution Center notified residents of Namie Town, Fukushima Prefecture, and TEPCO of its decision to discontinue its efforts to achieve an Alternate Dispute Resolution (ADR) on the residents' demand for additional compensation for mental anguish caused by the 2011 Fukushima nuclear accident.

Around 15,700 residents of the town near TEPCO's crippled Fukushima Daiichi Nuclear Power Station (FDNPS) launched this class action lawsuit, demanding that the utility's monthly compensation payments to them be raised from the present 100,000 to 350,000 yen per person. The town government acted as the representative of the residents' group in this case.

Earlier, in March 2014, the center presented an ADR proposal that the compensation payments be increased by 50,000 yen per person (with increases of up to 80,000 yen for elderly people aged 75 or more) for a certain period of time. The Namie residents accepted the proposal, while the utility rejected it as many as six times, claiming that the increase would have too great an effect from the perspective of fairness with other evacuees. Confronted with this situation, the center has decided to discontinue its mediation efforts.

Since the nuclear accident at FDNPS, TEPCO has repeatedly insisted that its original standpoint was to carry out the accident clean-up and settlement operations in Fukushima, and that the utility was officially allowed to survive to fulfill this responsibility. For the purpose of extending appropriate and speedy damage compensation, the utility declared that it had set three targets, (1) to provide compensation to every single sufferer, (2) to extend it expeditiously and with careful attention to the sufferers' needs, and (3) to pay respect to out-of-court settlement proposals.

The question now is, what has happened to the utility's determination to fulfill this responsibility? How do they explain the gap between the three targets mentioned above and their refusal to accept the ADR proposal on the additional compensation for the Namie Town residents? TEPCO's contradictory action is totally unacceptable.

Coincidentally, the Japan Atomic Power Company (JAPC) announced on the same day that TEPCO and Tohoku Electric Power Co. had complied with its request and agreed to jointly pay around 174 billion yen to JAPC. JAPC claimed that this huge amount of money is necessary for improving its Tokai No.2 Power Station (T2PS) facilities to meet the Nuclear Regulation Authority's (NRA) new safety requirements. This announcement was made at NRA's 562nd meeting on nuclear power plant compatibility with the new requirements, held on April 5.

According to the mutual contract, TEPCO is required to buy 80 percent of all electricity generated by T2PS, and Tohoku Electric Power, 20 percent. The two utilities are, therefore, extending financial support to JAPC in accordance with this ratio. The contract says, that when JAPC incurs massive debts that exceed its own capital, the two utilities will extend financial support to the company in the form of debt guarantees and other financial aid.

JAPC, jointly established by Electric Power Development Co. (J-POWER) and electric power companies, is a firm specializing in nuclear power generation. Officials of TEPCO and Kansai Electric Power Co. have assumed the post of company president alternately. The incumbent JAPC president, Mamoru Muramatsu, was previously a TEPCO Managing Executive Officer.

Of the four nuclear power reactors owned by JAPC, the Tokai Power Station, the first commercial nuclear power plant in Japan, and Unit 1 of the Tsuruga Power Station are in decommissioning phase, while the other two are planned to be reactivated. They are the T2PS and Unit 2 of the Tsuruga plant. Despite this plan, the restart of these two nuclear reactors appears to be extremely difficult. In the case of the Tsuruga plant, an NRA expert team has recently issued an assessment that an active fault lies under Unit 2 of the plant in Fukui Prefecture. To reactivate the T2PS, JAPC is required to win consent from six local communities located within a 30km radius of the plant.

Although JAPC is unable to restart its nuclear reactors and is incapable of generating power, it is receiving from Tokyo, Kansai, Chubu, Hokuriku, and Tohoku Electric Power Companies a huge amount of money as "electricity sale proceeds" each year based on the mutual contract. In FY2016, JAPC received 106.5 billion yen in total from the five utilities, of which TEPCO paid 43 billion yen.

The total amount received by JAPC from the five utilities during the six years after 2011 reached approximately 769.0 billion yen.

The utilities are raising this enormous amount of money by padding consumers' electricity bills. This extra payment by consumers is spent on JAPC's idled nuclear power plants that have no prospect of reactivation. Without this revenue, it is obvious that JAPC would have already become bankrupt. Meanwhile, the amount of additional compensation proposed in the ADR plan and refused by TEPCO totaled around 9.5 billion yen annually.

The government has allocated 13.5-trillion yen in government bonds for compensation to be paid by TEPCO, and it has already decided to convert more than 10 trillion yen of the bonds into Japanese currency. Furthermore, there is a strong possibility that the government's financial assistance needed by TEPCO may eventually exceed this projected level. The government's Nuclear Damage Compensation and Decommissioning Facilitation Corporation currently owns 54.69% of all shares in TEPCO, and depending on the situation regarding conversion of its preferred stock into common stock, its ownership may expand to 75% in the future. Without such generous financial support from the state, it is certain that the utility would have gone under a long while ago. TEPCO was officially allowed to survive because it has a duty to pay compensation to the Fukushima nuclear accident sufferers and to achieve decommissioning of the crippled Fukushima nuclear plant. This failed company, however, is abdicating this responsibility and is financially supporting another virtually-insolvent company. This is an extremely unusual and unreasonable situation.

On April 10, the Minister of Economy, Trade and Industry,

Hiroshige Seko, reportedly expressed his approval of TEPCO's financial support to JAPC, saying that this matter should be determined by the utility itself in accordance with its business management responsibility. This remark is also incomprehensible. At present, Keita Nishiyama, former Deputy Director-General for Economic and Social Policy of the Ministry of Economy, Trade and Industry (METI), assumes the post of a TEPCO Director, and Ryuichi Yamashita, former Director-General of the Natural Resources and Fuel Department in the METI's Natural Resources and Energy Agency, is a TEPCO executive officer. In other words, it was METI, which holds more than 50% of TEPCO shares and dispatches its officials to the utility, that made this business decision.

However, it is impermissible for the government, which is spending such an enormous amount of taxpayers' money on TEPCO, to allow the utility to give financial support to another collapsed company. In the first place,

the government should never have tolerated the utility's payment of as much as 270.8 billion yen to JAPC as money to purchase electricity over the past six years.

If the state is rich enough to permit TEPCO to spend massive funds for unnecessary purposes, it should force the utility to take responsibility for causing the Fukushima nuclear accident and reduce the financial burden borne by the Japanese public.

There is no need for TEPCO to survive any longer, because it has abdicated its responsibility for the nuclear accident and continues to support a virtually failed company.

The utility should go bankrupt and be liquidated.

* TEPCO's annual electricity sales for 2016 totaled 241.5 billion kWh, which means each household is paying 789 yen to the utility annually. (The average electricity consumption per household in 2016 was 4,432kWh.)

Reference Material:

Accidents and Breakdowns Occurring at Nuclear Power Plants and Nuclear Fuel-Related Facilities (FY2017)

CNIC has compiled a list of accidents and breakdowns occurring at nuclear power plants and nuclear fuel-related facilities in FY2017 (April 1, 2017 to March 31, 2018) from the following four sources.

(1) Reports based on the Nuclear Regulation Act and Radiation Hazard Prevention Act (FY2017)

<http://www.nsr.go.jp/activity/bousai/trouble/houkoku/h29.html>

(2) Records of Nuclear Regulation Authority meetings with nuclear power operators

<http://www2.nsr.go.jp/disclosure/meeting/index.html>

(3) Reports of problems in the NUClear Information Archives (NUCIA) (Japanese nuclear power plants and nuclear cycle facilities)

<http://nucia.jp/nucia/kn/KnTop.do>

(4) Power company and nuclear power operators' press releases.

Seven accidents are listed in (1). Of these, two accidents were at facilities handling radioactive isotopes (Shionogi & Co., Ltd. and Tokyo Institute of Technology). Persons interested in these accidents should please refer to the website given in (1) (Japanese only).

Looking at the database in (3), it can be seen that large and small accidents, breakdowns and defects occurring in FY2017 number 139 (132 in NPPs, 7 in nuclear fuel-related facilities). We have included in the list only accidents from the "T class" (trouble) and "M class" (maintenance quality).

Circles ○ in the 'Classification' column are accidents published on the website in (1) and are the same as accidents classified under "T class" in (3).

A wide variety of accidents and breakdowns are reported, from plutonium exposure and leakages of radioactive materials to fires, smoke emissions and diesel fuel leaks. Several problems occurred due to differences between design drawings and the situation onsite. The dust collector filter fire at Hamaoka NPP Unit 5 could possibly have led to a dust explosion accident. The accident at Genkai NPP Unit 3, where the reactor was not shut down after damage to the secondary system in the pressurized water reactor, is reminiscent of the accident response at Mihama NPP Unit 3 in 2004, when a burst pipe accident occurred.

<Chihiro Kamisawa, CNIC>

**Due to space restrictions, some of the selected incidents have not been included in the pdf version of Nuke Info Tokyo. They can be viewed online at <http://www.cnic.jp/english/?p=4132>*

Date	Facility	Incident Report	Classification
2017/4/2	Sendai	At 16:24, while Units I and 2 were operating normally at Sendai Nuclear Power Plant, due to the investigation of problems with the generating line at Sendai Thermal Power Plant, a problem arose where external power sources became unable to receive power that they are usually supplied from Hitoyoshi Substation via Sendai Thermal Power Plant. While according to safety regulations it is required to have at least three external power supply circuits operating, only the two from South Kyushu Substation were secured, thus deviating from operational restrictions. At 21:12, a normal situation was restored. As Kyushu Electric Power Company confirmed that Sendai NPP was receiving power from the Hitoyoshi Substation via the Shin-Kagoshima Substation, bypassing Sendai Thermal Power Station, the deviation from operational restrictions was annulled at 19:15. However, as it was pointed out by the Nuclear Regulation Authority that this supply route was not contained in the permission for changes to the establishment of the nuclear reactor or the construction plan approval, it was once again admitted that a deviation had taken place.	
2017/5/2	Hamaoka	A worker on a patrol inspection discovered that a deposit of particle-like material had spread over the floor to an extent of 80cm by 70cm around a water drainage catch basin in the drum transport device maintenance room in the second floor of the basement of the waste volume reduction processing unit building (Building 1). Two further deposits were found in the same room and a further two more deposits in the next room, the drum management room. As the surface contamination density of the first deposit discovered was 141 Bq/cm ² , exceeding the standard of 40 Bq/cm ² , steps were taken to restrict entry to the area. It was confirmed that the deposits consisted of particulate resin, powdered resin, and metal scrap. These were found to contain cobalt-60, manganese-54, cesium-137 and zinc-65, the radiation being assessed as a total of 3,330 kBq. Chubu Electric Power Company presumed that the accident occurred because "effluent with a high concentration of resin was discharged (a cleaning operation of the cleaning drain receiving tank) into the building's water discharge system via the cleaning drain receiving tank due to implementation of a discharge operation from the dryer liquid supply tank B to the cleaning drain receiving tank."	○
2017/5/22	F2 Unit 1	Circulating oil and coolant leaked from chiller B in the central control room.	
2017/6/20	Hamaoka Unit 3	Corrosion and fissures were confirmed in the strainer filter when carrying out an overhaul and inspection of the eddy strainer on the seawater coolant system for the high-pressure core spray equipment.	
2017/7/5	Ikata Unit 3	It was discovered when performing a monthly test of the emergency diesel generators 3A and 3B that the temperature of the air at the outlet of the air cooler was gradually rising. The air cooler uses sea water and it was presumed that marine animals such as shells had become affixed to the narrow tubes. Cleaning was implemented.	
2017/7/7	Rokkasho Enrichment Plant	When a test operation of the diesel generator A in the auxilliary building was performed during an inspection, flames were seen coming from the generator's control panel.	
2017/8/2	Fukushima Daiichi Nuclear Power Station	The subdrain water level temporarily declined rapidly in two locations in the No.51 subdrain pit installed on the southwestern side of Unit 4 reactor building. Since there was no change in the water levels in the accumulated water in the Unit 4 reactor building and waste treatment building or in the other subdrains in the area surrounding Unit 4, it was at first judged that a failure and accident had occurred to the water level gauge in subdrain No.51. However, as drilling work was being performed in subdrain No.215, located 6 or 7 meters from subdrain No.51, it was judged that there was no failure of the water level gauge but that the water level had actually declined due to the impact of the drilling work. The water level of the accumulated water in each of the buildings exceeded the water level in the subdrains for some time and thus there was a deviation from operational restrictions.	
2017/8/7	Shimane	Chugoku Electric Company was contacted by the maker to say that a defect occurring in the program installed in the low-level radiation waste dispatch testing equipment was causing some of the measured data to be lost. Of the 8272 solidified waste containers sent to the Japan Nuclear Fuel Ltd. Low-Level Radioactive Waste Burial Center in Rokkasho Village, the test data for 3448 containers has been lost. <i>*Similar incidents were reported at Shika, Ikata and Tsuruga where data for 4, 10 and 811 containers respectively had been lost.</i>	
2017/8/10	Nuclear Fuel Industries, Ltd, Kumatori	An inspection of the powder mixer in mixing room 2-2 in the No.2 processing building showed that uranium powder was leaking from around the flanges, etc. A detailed inspection of the equipment showed that a gap was present on the surface of the joint between the resin cover installed where the lower part of the loader is joined to the upper part of the powder mixer, and where uranium powder was accumulating. The recovered amount was 19.1 grams (assessed as 2.66 million Bq). 90 grams of uranium had also accumulated inside the equipment.	○
2017/8/22	Fukushima Daiichi Nuclear Power Station	It was discovered that when spent fuel stored in the common spent fuel pool at Fukushima Daiichi Nuclear Power Station was placed in dry casks for both storage and transport in November 2013, four assemblies of spent recovered uranium was placed in two of the casks without permission and was stored in the temporary cask storage facility. The two casks were returned to the common spent fuel pool from the temporary cask storage facility by October 20, 2017.	

Date	Facility	Incident Report	Classification
2017/9/28	Fukushima Daiichi Nuclear Power Station	In the surroundings of Units 1-4, the newly established subdrain pits (Nos. 201, 202, 203, 208, 209, 212), the use of which had begun during the period April 19 to August 9, the settings for the water level gauges were mistaken and it became clear that the water levels were actually 709mm lower than the measured water levels. Because of this, the subdrain water levels became lower than the level of the accumulated water in the Units 1-4 reactor buildings. As there was a possibility that there was a deviation from operational restrictions, the subdrain pump operation was suspended. It was found that the water level in subdrain pit No.203 deviated from operational restrictions. At the time of the subdrain pit construction, the three altitude standards T.P., former O.P. and new O.P. had been employed in a confused manner.	
2017/10/11	Rokkasho Uranium Enrichment Plant	In an inspection of air supply and exhaust ducts performed autonomously following the duct corrosion at Shimane NPP Unit 2, it was announced on September 1 that severe corrosion and large numbers of apertures had been found. No inspection had been performed since the facility began operation in 1992. In particular, corrosion and damage in the draught chamber fitted with monitoring scrubber in the analysis room on the enrichment plant first floor, where chemical substances are used, was extremely severe, with some parts failing to maintain their original shape. On October 11, it was judged by the Nuclear Regulation Authority (NRA) that safety regulation infringements had occurred since the function of containing nuclear fuel substances had not been maintained.	
2017/10/29	Hamaoka Unit 4	The water leak alarm sounded at the piping duct for the reactor equipment cooling water system. The sealing material in a wall aperture had come loose and it was discovered that water had flooded into the trench room. The influx of water was about 600 liters, which was rainwater from typhoon 22. The cover for the area into which workers had to enter to pull the cable around had not been properly maintained. It was discovered that similar maintenance failures existed in 8 locations. Triggered by this problem, when examining whether or not measures had been taken to prevent water intrusion in building apertures as a response to an instruction order issued for Units 3-5, it was found that building apertures in 44 locations had been removed from inspection schedules.	
2017/10/30	Fukushima Daiichi NPS Unit 6	When starting the Unit 6 emergency diesel generator A for a regular test, a problem occurred where it was not possible to adjust the frequency and the generator could not be connected to the power supply system. The generator was suspended from use. TEPCO judged that the governor had broken down.	○
2017/11/18	Hamaoka Unit 5	When metal fusion cutting was being carried out near the large service hatch on the first floor of the turbine building, smoke emission occurred from the filter of the dust collector being used to collect metal dust produced by the metal fusion cutting.	
2017/11/20	Tsuruga Unit 1	To carry out decontamination work on new fuel stored in the spent fuel pool, when the pool insert/detach machine was being used to remove channel boxes, the chain that drives the movable platform on which the new fuel is placed broke and fell to the bottom from a height of about 4m. The fuel was not damaged. It was found that the limit switch that automatically stops the winding of the chain at the location of the upper limit when the moveable platform is rising was deformed. It was discovered that the limit switch failed to function due to the cross guide, one part of the limit switch, having been fitted upside down .	
2018/1/15	Kashiwazaki-Kariwa Unit3	Sparks and an abnormal smell occurred in the emergency electrical parts room in the first floor basement of the seawater heat exchanger room building. A fire had occurred inside a 6900V power supply circuit breaker, burning the electric cord covering and the trip coil inside the circuit breaker.	
2018/1/18	Hamaoka NPP	When workers entered the ventilation system main exhaust unit A on the second floor of the waste compaction device building (building No.1) for an inspection, a particulate deposit was found spread over an area of 130cm by 80cm on the floor around the water catch basin. The surface radiation contamination density was 105 Bq/cm ² , and as this exceeded the standard (40 Bq/cm ²), steps were taken to restrict entry into the exhaust filter unit zones A and B. The deposit contained cobalt-60, manganese-54 and cesium-137, and the total radiation was assessed as 200 Bq. There were differences in the joints of the piping in the building compared with design drawings and it was found that the catch basin in question in this incident was connected with the catch basin where contamination was discovered on May 2, 2017 and the effluent water system piping in the building.	○
2018/2/14	Shika NPP	In a safety inspection by NRA, it was found that three NPP employees had not undergone safety education, and this was judged to be a "supervisory" safety regulation infringement.	
2018/3/30	Genkai NPP Unit 3	When generation was resumed and trial running was carried out at 75% of output capacity on March 25, steam was discovered leaking from the 3B deaerator air vent pipe (carbon steel). The generator was shut down, and when the 8 air vent pipes on each of the 3A and 3B deaerators were examined, severe rusting was seen on the exterior plate of the air vent pipe (No.5 air vent pipe) from which the steam leakage had occurred and there was also rust on the insulating material and pipe joints. A 13mm by 6 mm dent and one pinhole, thought to have been caused by corrosion, were found on this pipe. No abnormality had been found in the corrosion wastage inspection performed in the 10th regular inspection period from December 2006 to March 2007. At the time of normal regular inspections, inspection by removal of the insulating material was not carried out. The 16 pipes and exterior plates, etc. were replaced.	

CNIC Seminar report:

The problems with Japan's Plutonium: What are they and how do we deal with them?

On April 20, CNIC organized a seminar with guest speaker Prof. Frank von Hippel, a nuclear physicist from Princeton University's Program on Science and Global Security, presenting alternative ways to dispose of spent fuel instead of reprocessing, as well as options for disposal of separated plutonium. After this presentation of technical solutions, a panel discussion took place. Prof. Eiji Oguma, a historical sociologist from Keio University's Faculty of Policy Management and a well-known commentator on the post-Fukushima anti-nuclear movement in Japan, pointed out the political barriers that must be overcome if any of these technical solutions were to be actually implemented, no matter how much more reasonable they may seem from economic and safety perspectives. CNIC's General Secretary, Hajime Matsukubo was also on the panel and brought into the discussion the international implications of Japan's plutonium policy including the US-Japan Nuclear Agreement.

Prof. von Hippel explained that plutonium disposal is a global problem, with more than half of the existent separated plutonium being produced as a result of civilian reprocessing, the rest produced for military purposes. Disposing of the plutonium that had been produced for weapons during the cold war has been a huge headache for the United States with planned disposal by burning it as MOX fuel in commercial reactors proving hugely expensive. America has all but abandoned its half-built MOX plant and is now looking towards the 'dilute and dispose' option. This process would use glove boxes to mix 300 grams of plutonium oxide into a can of 'star dust' (a secret ingredient from which plutonium would be difficult to separate again). This can would then be placed in a plastic bag and another 'outer blend can.' Another way of immobilizing plutonium is the Hot Isostatic Pressing method, which is being developed in the UK and utilizes radiation-resistant, low-solubility ceramic. After plutonium has been immobilized, it is safer to bury it underground than keep it on the surface and Prof. von Hippel mentioned the deep borehole disposal method which uses techniques developed for drilling oil and geothermal wells that can bore five kilometers into the earth. In the US, however, plans for a demonstration project of this method of radioactive waste disposal were rejected by local governments. Prof. von Hippel stressed that the main lesson for Japan is that separated plutonium is extremely difficult to dispose of and that it is definitely better not to separate any more than is already stockpiled. Instead of sending spent fuel from the nation's nuclear power plants to Rokkasho for

reprocessing, it would be safer and much cheaper and more efficient to set up dry cask storage for the spent fuel onsite at the plant. Prof. von Hippel showed us successful examples of this method in the US and suggested that there were moves in this direction in Japan as well.

Prof. von Hippel's detailed technical solutions were very convincing. Yet despite the dangers of holding such a large plutonium stockpile (47 metric tons, enough for approximately 6,000 nuclear weapons), despite the massive costs involved and despite having no concrete viable plans as to how to actually use the separated plutonium, official Japanese government policy is to continue to separate even more plutonium at the Rokkasho Reprocessing Plant, which is currently due to commence operations in 2021.

In the panel discussion which followed Prof. von Hippel's presentation, Prof. Oguma agreed that reprocessing was most certainly problematic, but, he pointed out, it will be extremely difficult to just put up onsite storage of spent fuel, no matter how reasonable a technical solution it is. Political consent must be gained from the people in communities, which will not just be hosting the nuclear power plant, but will be asked to store its radioactive waste as well. As Prof. Oguma pointed out, especially post-Fukushima Daiichi, no one trusts the Japanese Government's nuclear policy and the likelihood that they will agree to yet another imposition that can be perceived to be long-term and dangerous, is very low. Much of the Japanese public also believes that onsite storage is merely an excuse for the nuclear industry to keep afloat. If spent fuel pools fill up, utilities will not be able to operate their plants. For many activists this is one way of closing them down, which is their main aim. Prof. Oguma argued that a minimum requirement for any form of political consent to onsite storage would be a clear commitment by the government to phase out all nuclear power by a fixed date, so that the final amount of waste can be determined and will not just keep growing, along with the burden on local people.

This is a significant difference in perspective. Prof. von Hippel's main aim is to stop reprocessing and reduce stocks of separated plutonium, even if nuclear power generation continues, but Prof. Oguma claims that without an overall reassessment of the entire nuclear power policy it will be impossible to gain political consent for Prof. von Hippel's proposed onsite storage.

The economics is not as straightforward as it sounds either. While it is undoubtedly cheaper, in a purely mathematical sense, to simply dispose of spent fuel as



From right to left: Prof. Eiji Oguma, Prof. Frank von Hippel, Hajime Matsukubo
 <Photo by Ryohei Kataoka, CNIC>

waste, instead of reprocess it and fabricate MOX fuel, the accounting systems of utilities make the more efficient alternative of direct disposal very difficult. At the moment, spent fuel is counted as an asset on utility balance sheets under the premise that it will become MOX fuel. If reprocessing is officially abandoned, all of the spent fuel 'assets' will become 'liabilities' and many utilities will be facing possible bankruptcy. Prof. Oguma suggested that the only way to overcome all these political and economic barriers is for the government to disclose all information on nuclear power and reprocessing and to conduct an open public debate on how to proceed. If a public consensus is reached, based on all the scientific, technical and economic data available, then reprocessing should be stopped.

CNIC's Hajime Matsukubo pointed out that the Japanese government's accountability crisis was not just domestic, but international. Building up such large stocks of plutonium at huge cost and with no credible purpose inevitably makes neighboring countries suspect Japan's intentions. Indeed documents recently revealed show that the present Vice Minister of the Ministry of Foreign Affairs has long been an advocate of Japan becoming a nuclear weapons state. Japan's opposition to President Obama's proposal that the US adopt a no first-use of nuclear weapons policy, was reported in the Japanese media. Thus Japan's credibility as a strong advocator of non-proliferation is already failing and the plan to separate even more plutonium at Rokkasho could easily provoke a regional nuclear arms race, destabilizing the region, just as hopes rise that the situation in North Korea may improve.

Mr. Matsukubo also pointed out that Japan is the only non-nuclear weapons state that is permitted to separate plutonium under the US-Japan Nuclear Cooperation (123) Agreement. This creates double standards which weaken the entire global non-proliferation regime. For example, Saudi Arabia is negotiating a 123 Agreement with the US and demands that it also be allowed to reprocess spent fuel 'like Japan.'

For all of the above safety, economic and non-proliferation reasons, it would seem that there is plenty of ammunition for the movement against reprocessing. Indeed, Mr. Matsukubo said that in many ways it should be easier to stop reprocessing than stop nuclear power generation. Why hasn't this happened? As well as the difficulties mentioned by Prof. Oguma, there is also the factor that the movement against reprocessing in Japan has not been as strong as the movement against nuclear power. Reprocessing seems like a more convoluted, more removed issue, perhaps difficult for people to grasp and focus on. All speakers agreed that the movement against reprocessing must be strengthened. The first thing that must be done to achieve this is to raise awareness and understanding regarding this issue within the broader anti-nuclear movement (both power generation and weapons) and the general public. Providing accurate information on the nuclear fuel cycle in a format that people can understand is the vital first step. As many people as possible must be informed about the costs, the dangers and the alternatives. The movement must be strong enough to demand that governments and utilities disclose all data, engage in an open debate and commit to implementing the consensus which emerges.

Prof. Oguma said that he and many other activists in Japan were committed to conveying the messages of Fukushima to the larger world, and to contributing to international solidarity on ending nuclear power. This also includes understanding how other countries see Japan. The plutonium issue is one that has particularly strong international impacts and implications and by pursuing this present policy the Japanese government is only damaging Japan's international credibility, especially regarding non-proliferation.

The seminar concluded that, whether on an international level or a domestic one, the Japanese government must restore accountability and democracy, it must formulate a responsible nuclear policy that is demonstrably safe, economic and realistic and which has the consent of the people. Viable technical alternatives to reprocessing spent fuel are available but can only be implemented through raising awareness and a change in political will, which as a movement, we must focus on with added strength.

<Caitlin Stronell, CNIC>

NEWS WATCH

Itochu Withdraws from Turkish NPP Project

The trading house Itochu was to have a greater than 10 percent stake in a company (not yet established), it was said, that would run the Sinop Nuclear Power Plant (NPP) project, Turkey's second NPP project, but Itochu announced that it would be withdrawing from the project at the end of March. It had been participating in a feasibility study as a precondition for commercialization, but that study was still incomplete at the end of March, when it was supposed to have been wrapped up, and Itochu declined a request to extend its contract.

Mitsubishi Heavy Industries was to take leadership of the consortium including Itochu and Engie (formerly GDF Suez) of France with a combined 51% stake in the operating company. A new Turkish company (Turkish Electricity Generation Corporation) would provide the remaining 49% of funding, but that deal has fallen apart. It is said that risks were becoming apparent with the build-own-operate (BOO) model, in which the operating company was to build and own four 1100 MW ATMEA 1 reactors and recover costs by operating the reactors and selling the electric power.

According to the May 3 edition of Tokyo Shimbun, Chairman Masahiro Okafuji of Itochu said on May 2 that the Turkish government kept making demands and was having financial difficulties, indicating the possibility that Turkey's cash position was worsening and its plans would bog down. In a speech at the Japan Atomic Industrial Forum's annual conference on May 10, Mitsubishi Heavy Industries' executive officer in charge of the project expressed concern about fundraising difficulties.

Originally estimated at 2 trillion yen, the construction costs are said to have swollen to over 4 trillion or even 5 trillion yen, with uncertainties about how far responsibilities extend with respect to both setting matters straight and how to defray the costs. It would be fair to say that there is no guarantee whatsoever of the project earning a profit. Moreover, as this is not simply an export of equipment, responsibility will be taken under the BOO model, meaning that none of the participants will be exempt from nuclear damage compensation and all would be obligated to pay reparations. The risks are both enormous and unlimited.

At the Akkuyu NPP, Turkey's first nuclear project, which has set a precedent with the BOO model, construction of the first 1200 MW VVER4 reactor got fully underway on April 3. Even here, three Turkish

companies that were to provide 49% of the funding for the Akkuyu Project Company established by Rosatom have decided to abandon it.

UK NPP Project Even More Uncertain

Plans for the Wylfa-Newydd Nuclear Power Station in Wales (see News Watch No.182), comprehensively supported by the Japanese government and advanced by Hitachi, Ltd., are facing dire straits. The UK is anticipated to agree to provide 2 trillion yen in financing toward the 3 trillion yen total cost of the project as requested by Hitachi in its talks with the UK government, but even if an agreement is reached, the outlook is uncertain.

Restart of Tokai Daini NPS Facing Big Hurdles

The Local Heads of Government Colloquium on the Siting of Nuclear Power Facilities, comprising Mito, Hitachi and three other cities in Ibaraki Prefecture, along with Tokai Village, where the Japan Atomic Power Co. (JAPC) sited the Tokai Daini NPS, convened on March 29 and signed a new "Agreement on Ensuring Safety and Protecting the Environment around Nuclear Power Plants" with the JAPC.

The five cities, along with Tokai Village and Ibaraki Prefecture, have a previously existing agreement with the JAPC, but Tokai Village and the prefecture have a prior understanding on construction of new facilities. They also possess the authority to request safety measures, including suspension of operation at facilities, and on-site investigations that the five cities lack. The colloquium was founded in February 2012, and has since then been requesting reconsideration of the safety agreement, seeking the same authority for the five cities as Tokai Village. This time, rather than revising the previous agreement, they concluded a separate, new specialized agreement on NPP restarts and operations exceeding 40 years.

The new agreement constitutes a "mechanism for effectively gaining prior understanding from the colloquium" through clear explanations from the JAPC, exchanges of views with the colloquium, and discussions for consensus-forming.

Responding to a reporter's question on reconciling differences of opinion within the colloquium, Mayor Osamu Yamada of Tokai Village, who chairs the colloquium, said "Majority decisions don't lead to acquiescence, so we aim to build consensuses among our five cities and the village."

Group Introduction: No Nukes Wakayama

The nuclear plant was defeated but the battle against the interim storage facility continues

It was in February 1977 that a nuclear power plant project was proposed in the former Hikigawa Town (now a part of Shirahama Town) in Wakayama Prefecture, western Japan. The town council decided to sell a block of town-owned land to Kansai Electric Power Company (KEPCO) at an ad hoc meeting. The town sold 660,000 square meters of mountainous forest land for 1.259 billion yen.

This created a profound controversy in the town. Those in favor of the project and those not in favor entered into an intense confrontation which lasted for 16 years. The town was divided into two, and even families were divided, generating conflicts between parents and children, and among siblings. In 1988, the town elected an anti-nuclear mayor, and the controversy gradually calmed down.

In Wakayama Prefecture there have been five candidate NPP sites, including Hikigawa, but all the projects were defeated by resistance from local populations. However, KEPCO's Hikigawa NPP siting office has continued to operate, with four employees.

We, local residents against NPPs, have been concerned for more than ten years about the possibility of Hikigawa being selected as an interim nuclear waste storage facility site. However, we were almost convinced that no NPP would be built here because Hikigawa Town merged with neighboring Shirahama Town in 2006 in the course of the great Heisei merger of cities, towns and villages, and because of the Fukushima Daiichi nuclear disaster.

Concerning the issue of interim nuclear waste storage facilities, Governor Issei Nishikawa of Fukui Prefecture, which hosts many KEPCO NPPs along the Japan Sea coast, issued a statement that the prefecture would accept the restart of Ohi NPP units 3 and 4 on condition that interim nuclear waste storage facilities would be built outside the prefecture. The KEPCO president announced the company's plan to select a facility site in 2018, to start construction in 2020, and to commence operation in 2030. In response to these announcements, Maizuru City and Miyazu City, situated along the Japan Sea shore, as well as the governor of Kyoto Prefecture in which the two cities are located, made it clear that they would not accept interim facilities in the respective municipalities. In Wakayama, located along the Pacific Ocean shore, the prefectural governor and the mayors of towns and cities have already stated that they would not admit high-level radioactive wastes, but the mayor of Shirahama Town has not ruled out hosting interim storage facilities. KEPCO and associated companies own about 1.2 million m² of mountainous forest land on the coast in the Hikigawa area of Shirahama Town, and there is a port nearby that appears to be suitable for the transportation of nuclear fuel.



No Nukes Wakayama submits a formal request to the Shirahama Mayor not to allow nuclear waste storage in their town

Concerned about such circumstances, residents organized a lecture gathering entitled "Say No to Interim Nuclear Waste Storage Facilities" on January 20 this year, inviting Mr. Hideyuki Koyama from Osaka Citizens Against the Mihama, Ohi and Takahama Nuclear Power Plants ("Mihama-no-Kai") to speak. We also submitted a formal letter to the mayor of Shirahama Town on February 23, requesting the mayor to announce that the town would not accept the construction of an interim nuclear waste storage facility. Later, on April 16, the members of the Kansai Network Concerned with Evacuation Plans submitted another formal letter of similar content to the mayor. On May 23, No Nukes Wakayama, organized a general meeting in Tanabe City, Wakayama, and decided to launch further actions against the construction of interim nuclear waste storage facilities, specifically by organizing small talks and informative gatherings, and by talking to the town council, the council of area leaders, and various organizations in the town, aiming to expand the movement and stop the project by all available means. We commit ourselves to handing over the beautiful ocean, mountains and rivers safely to our children and grandchildren, and we are determined to make continued efforts to achieve this.

<Kikuo Shimizu, No Nukes Wakayama Representative>

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