

Analysis on subsidised retail gasoline prices and subsidy programme

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Summary

The timeframe for a drastic fuel oil price change alleviation subsidy programme, so-called gasoline subsidies, has been extended further. Subsidies for electricity and gas are also under consideration. Such large-scale and wide-range energy subsidies can contribute to protecting people and industry from price hikes. They, however, could impede energy conservation and low-carbonisation through their conflicts with other systems and changes in national sentiment and should be considered prudently. This paper analyses attention-attracting gasoline prices in relation to the pioneering subsidy programme.

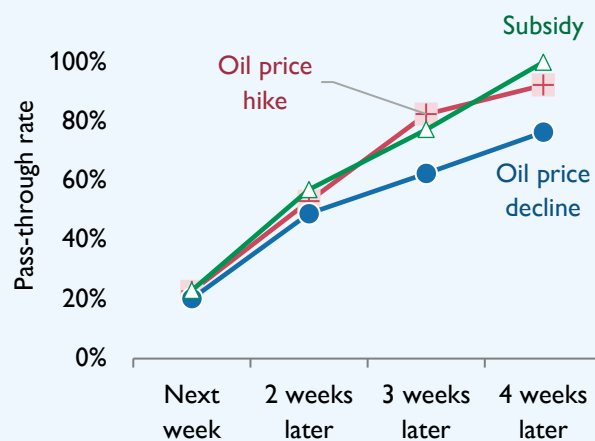
The subsidy programme has had the great effect of suppressing prices. Despite a sharp rise in yen-denominated oil prices that reflected international oil price spikes and the yen's depreciation to the lowest level against the dollar in 32 years, retail gasoline prices have remained around the standard level. Meanwhile, there are people who are far from benefiting from the subsidy programme, even though it covers representative energy sources. Electric vehicle drivers, residents of homes with electric water- and space-heating systems, and non-kerosene-consuming households seen frequently in urban and warm regions, as well as companies using none of the fuels subject to the subsidy programme, do not benefit directly from the programme. Its effect of suppressing retail gasoline prices is not uniform throughout Japan.

Key factors to define retail gasoline prices include how oil price changes are reflected in or passed through into retail gasoline prices over the short term. Oil price changes and subsidies take nearly one month to be passed through into retail gasoline prices. While oil price hikes and declines are passed through into retail gasoline prices at different speeds, subsidies are passed through into retail gasoline prices to a similar extent and at a similar timing with oil price hikes in the direction of lowering retail gasoline prices.

When energy and other consumption subsidies and price controls in general are implemented to support the poorest, various problems may arise. This paper considers potential measures to 1/ clarify the subsidy programme as a drastic change alleviation measure, 2/ mitigate fiscal burdens and 3/ prevent wrong signals from being sent, while leaving the basics of the subsidy programme intact. More specifically, this paper considers a proposal that the government collects some part of the subsidies after the termination of subsidisation under a mechanism in which the subsidies are technically replaced with loans for partial repayments.

The implementation of energy consumption subsidies and price controls in various countries indicates that their citizens, at least under the current situation, have recognised not only the importance of low-carbonisation but also people's and industry's heavy dependence on fossil fuels and the necessity to secure

Figure 1 | How oil price changes and subsidies are passed through into retail gasoline prices



quantitative energy supply and stabilise prices. The enormous size of the subsidies and price controls, which is taken as indicating the risk of fiscal deterioration, may demonstrate how complicated the problems are with realistic responses towards low-carbonisation and the significance of the cost problem.

Gasoline subsidies extended repeatedly

As retail gasoline¹ prices topped the then standard level of 170 yen per litre on 24 January 2022, the drastic fuel oil price change alleviation subsidy programme, known as gasoline subsidies, was invoked. This is a temporary, emergency programme to alleviate drastic changes to prevent fuel price hikes from weighing on the economic recovery from the COVID-19 crisis². The programme was designed to suppress retail price hikes by providing wholesalers and importers with financial resources for holding down prices², instead of triggering direct subsidy payments to consumers or suspending the special portion of national and local gasoline taxes. When the programme was published, its mechanism attracted attention.

Figure 2 | Mechanism for the drastic fuel oil price change alleviation subsidy programme to suppress fuel oil price hikes



Source: Translated from Agency for Natural Resources and Energy, <https://nenryo-gekihenkanwa.jp/>

In September 2022, the timeframe for the subsidies was extended until the end of 2022. While it was speculated that the subsidy unit price would be reduced from November 2022, the subsidy mechanism was left unchanged. Some media reports say that the timeframe may be extended until the spring of 2023. Prime Minister Fumio Kishida in his policy address to the National Diet on 3 October 2022, vowed to take an unprecedented bold measure to directly mitigate an increase in electricity bills. On 5 October, it was reported that the government was considering creating a system to ease the burden of gas price hikes. The government is thus expected to introduce large-scale and wide-range energy consumption subsidy systems one after another.

Such consumption subsidies can contribute to protecting people and industry from price hikes but are feared to impede energy conservation and low-carbonisation through their conflicts with other systems and changes in national sentiment. The current subsidy programme could become a precedent for measures to be taken when energy prices shoot up at the same pace as at present. Therefore, the subsidy programme may have no choice but to be related to the carbon neutrality goal. It is extremely important to prudently consider the handling of the programme. The following focuses on gasoline, which has attracted attention regarding the drastic fuel oil price change alleviation subsidy programme as a pioneering consumption subsidy system.

Immediate effect

The subsidy programme has had the great effect of suppressing prices. Despite a sharp rise in yen-denominated oil prices that reflected international oil price spikes and the yen's depreciation to the lowest level against the dollar in 32 years, retail gasoline prices have remained around the standard level (¥170/L then, ¥168/L at present) under the programme (Figure 3). According to the Agency for Natural Resources and Energy, the programme has had the effect of lowering retail gasoline prices by up to ¥41.9/L (Figure 4). Given that two-member or larger households purchase an average of 34 L of gasoline every month³, the programme has cut their spending by an average of 1 000 yen per

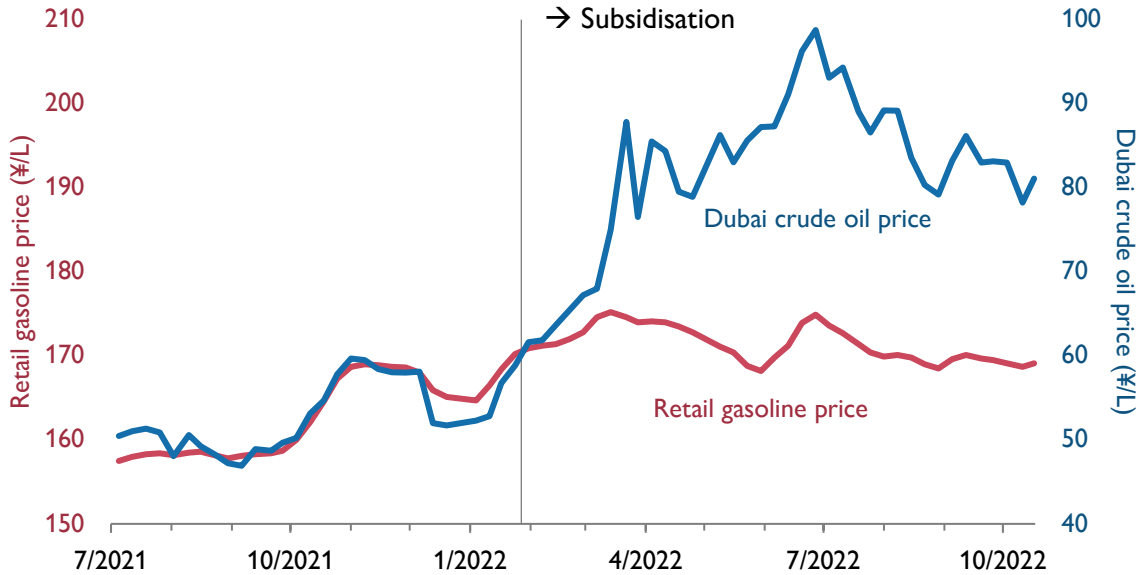
¹ Regular gasoline. Hereinafter the same applies in this paper.

² Agency for Natural Resources and Energy, <https://nenryo-gekihenkanwa.jp/> (in Japanese)

³ Ministry of Internal Affairs and Communications "Family Income and Expenditure Survey", as of 2021, including diesel oil

month over the past eight months. Beneficiaries from the programme are not limited to households. The programme covers not only gasoline (regular and premium) but also diesel oil, kerosene and heavy fuel oil. Aircraft fuel was also subjected to the programme after its implementation. Consequently, the programme’s cost alleviation effect has supported a wide range of sectors from households to industry.

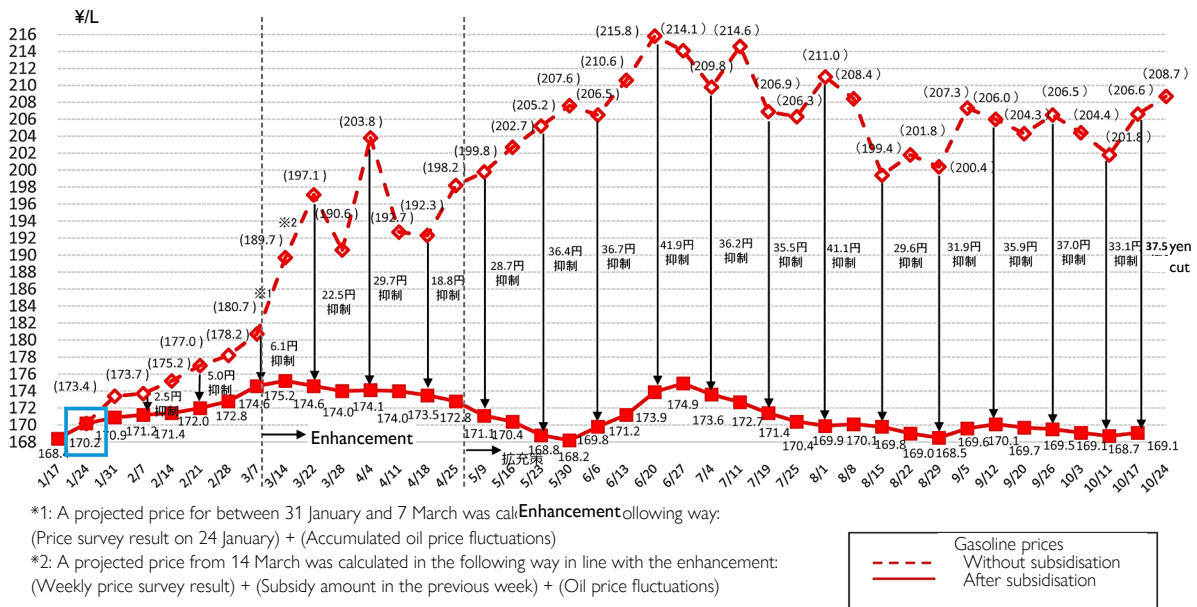
Figure 3 | Dubai crude oil and retail gasoline prices



Note: The Dubai crude oil price represents the average for a seven-day period ending on the Thursday in the week before the weekly retail gasoline price survey day (Monday).

Source: Agency for Natural Resources and Energy “Petroleum Products Price Survey”, Nikkei Shimbun newspaper, etc.

Figure 4 | Effect of the drastic fuel oil price change alleviation subsidy programme (gasoline)



*1: A projected price for between 31 January and 7 March was calculated following way:

(Price survey result on 24 January) + (Accumulated oil price fluctuations)

*2: A projected price from 14 March was calculated in the following way in line with the enhancement:

(Weekly price survey result) + (Subsidy amount in the previous week) + (Oil price fluctuations)

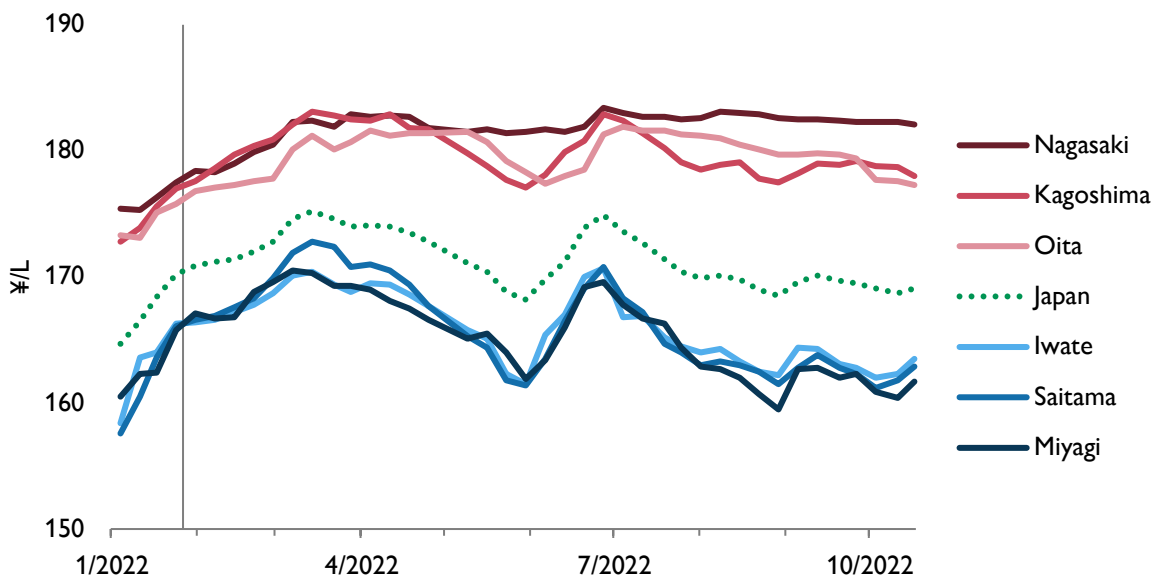
Source: Translated from Agency for Natural Resources and Energy, https://nenryo-gekihenkanwa.jp/pdf/result_rev36.pdf (in Japanese)

Patchy effect

Meanwhile, there are people who are far from benefiting from the subsidy programme. Drivers of electric and other vehicles⁴ that do not use gasoline or diesel oil, residents of homes with electric water- and space-heating systems, and non-kerosene-consuming households seen frequently in urban and warm regions, as well as companies using none of the fuels subject to the subsidy programme, do not benefit directly from the programme.

The effect of suppressing retail gasoline prices is not uniform throughout Japan. Figure 5 indicates retail gasoline price trends in prefectures that have recorded the first to third lowest and highest average prices among the 47 Japanese prefectures since 31 January 2022. The three lowest-price prefectures are Miyagi, Saitama and Iwate. The three highest-price prefectures are Nagasaki, Oita and Kagoshima.

Figure 5 | Retail gasoline prices



Source: Agency for Natural Resources and Energy “Petroleum Products Price Survey”

Retail gasoline prices usually differ by region, reflecting various product costs, various sales costs attributable to different mixes of full- and self-service sales, supply-demand balances and competition conditions. In fact, the average gap between the three lowest-price and the three highest-price prefectures is as much as ¥15/L. However, attention should be paid to different price fluctuation patterns rather than price gaps between prefectures. Prices in the three lowest-price prefectures and the nationwide average show a roughly similar fluctuation pattern. In contrast, the three highest-price prefectures feature narrower price fluctuations that slightly lag behind nationwide average fluctuations. As a matter of fact, however, such trends in the highest-price prefectures are usually seen, irrespective of the subsidy programme.

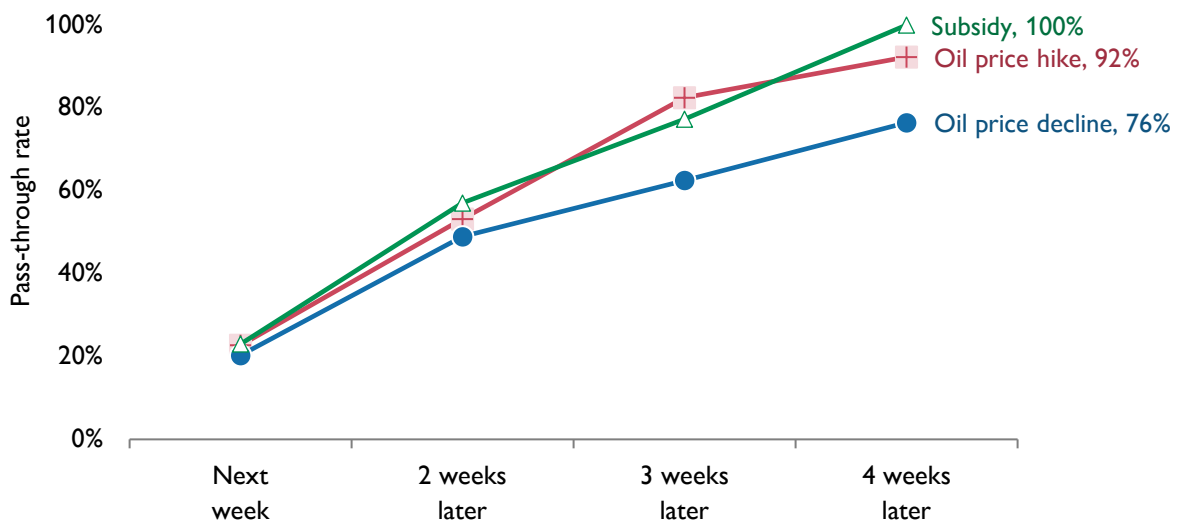
⁴ Regarding taxis using liquefied petroleum gas, the Ministry of Land, Infrastructure, Transport and Tourism implements a drastic fuel oil price change alleviation programme for taxi business operators.

Passing through oil price changes into retail gasoline prices

Factors to define retail gasoline prices include how oil prices are balanced with retail gasoline prices over the medium- to long-term. Another important factor is how oil price changes are reflected in retail gasoline prices over the short term. The mechanism in which oil price changes are passed through into retail gasoline prices was estimated for the period between the invocation of the subsidy programme and the present day (31 January – 22 September 2022)⁵. In the estimation, consideration was given to the possibility that oil price hikes and declines may be passed through into retail gasoline prices differently. It was also assumed that subsidies would be fully passed through into retail gasoline prices at the end, meaning the pass-through rate at 100%⁶. The oil price was estimated from the Dubai crude oil price reported by the Nikkei Shimbun newspaper, in accordance with the calculation of the subsidy effect by the Agency for Natural Resources and Energy. However, the previous week's oil price represents the average for a seven-day period ending on the Thursday in the week before the weekly retail gasoline price survey day (Monday).

The estimation results indicate that oil price changes and subsidies take nearly one month to be passed through into retail gasoline prices (Figure 6). While oil price hikes and declines are passed through into retail gasoline prices at different speeds due to the impact of supply-demand and other conditions, subsidies are passed through into retail gasoline prices to a similar extent and at a similar timing with oil price hikes in the direction of lowering retail gasoline prices.

Figure 6 | How oil price changes and subsidies are passed through into retail gasoline prices

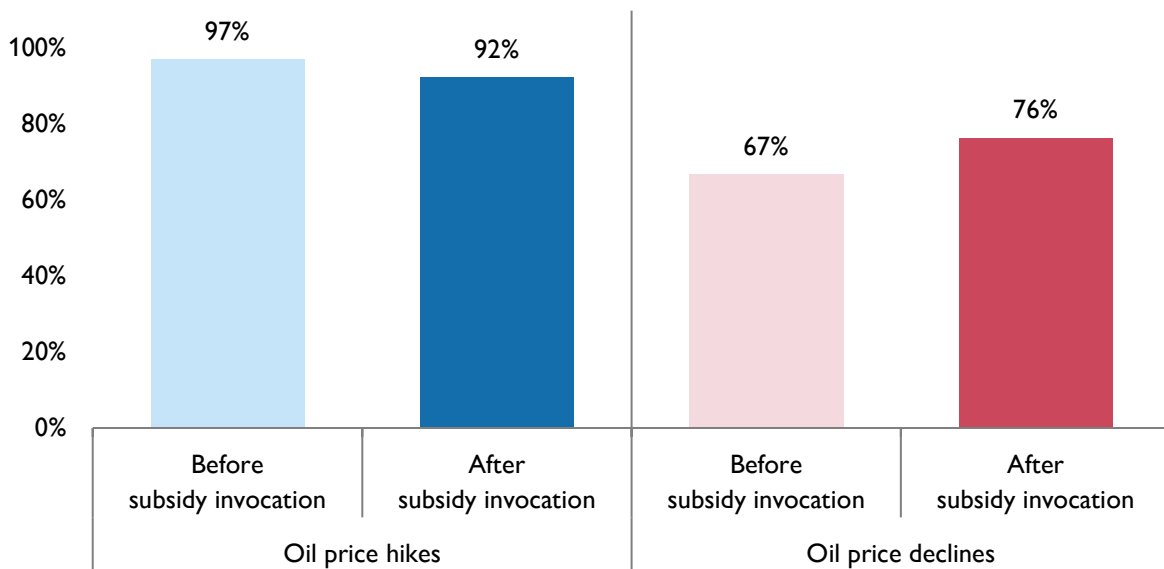


From the period (between 4 January 2021 and 24 January 2022) before the invocation of the subsidy programme, the pass-through rate increased for oil price declines while decreasing for oil price hikes slightly (Figure 7). Further analysis is required to determine whether the increase in the pass-through rate for oil price hikes is attributable to oil prices' downtrend after a peak in late June 2022, to growing attention to high gasoline prices, or to any other factor.

⁵ It must be noted that the unit price in the real world is ¥0.1/L for subsidies, ¥0.5/L for wholesale gasoline prices, and ¥1/L for retail gasoline prices.

⁶ This assumption could be viewed as a tough one but is designed to prepare for multicollinearity.

Figure 7 | How oil price changes were passed through into retail gasoline prices



Note: The period before subsidy invocation is between 4 January 2021 and 24 January 2022. That after subsidy invocation is between 31 January 2022 and 22 September 2022.

Inconsistency with past policies

It is pointed out that the drastic fuel oil price change alleviation subsidy programme has the potential to run counter to energy conservation and low-carbonisation policies. Furthermore, it is noted that consumption subsidies and price controls for energy and others in general to support the poorest have various problems⁷. This is because of the following:

- 1/ These measures to artificially lower relative prices could induce overconsumption, wasting, and supply capacity shortages.
- 2/ Subsidies could benefit those other than appropriate targets.
- 3/ It could be politically difficult to terminate subsidies.

Theoretically, direct subsidies (monetary payments) to the poorest may be viewed as more desirable. In reality, however, such direct subsidies to the poorest are technically difficult to implement⁸.

Given these points, fuel consumption subsidies mainly in developing countries were viewed as problematic in the late 2000s, when energy price spikes including the rise of oil prices to record highs became a global challenge. Then, the Group of Twenty at its Pittsburgh Summit in 2009 formulated a G20 leaders statement at the initiative of developed countries, including the following passage⁹:

To phase out and rationalize over the medium term inefficient fossil fuel subsidies while providing targeted support for the poorest. Inefficient fossil fuel subsidies encourage wasteful consumption, reduce our energy security, impede investment in clean energy sources and undermine efforts to deal with the threat of climate change.

⁷ In an old instance, healthcare for the elderly became free, leading to salon-like hospitals, social hospitalisation, a rapid rise in overall elderly healthcare costs and difficulties in national health insurance management. Recently, it is pointed out that a local government measure to make child healthcare free has induced excessive healthcare use.

⁸ Japanese and other governments have failed to grasp household and personal income levels, making it difficult to identify the poorest.

⁹ <http://www.g20.utoronto.ca/2009/2009communique0925.html>

This commitment has been maintained. For instance, the Joint G20 Energy-Climate Ministerial Communiqué in Naples in 2021 took up the commitment anew as follows¹⁰:

Noting that phasing out inefficient fossil fuel subsidies that encourage wasteful consumption is one of the key policies to reform harmful incentives and align finance flows with the Paris Agreement, we recall our 2009 Pittsburgh and 2013 Saint Petersburg commitments to phase-out and rationalise, over the medium term, inefficient fossil fuel subsidies while providing targeted support for the poorest. Such subsidies reduce our energy security, impede investment in clean energy sources and undermine efforts to deal with the threat of climate change...

Nevertheless, developed countries including Japan have recently implemented large-scale energy consumption subsidies and price controls in response to energy price spikes caused by drastic changes, such as supply constraints amid an economic recovery from the COVID-19 crisis, the Ukraine crisis, and steep currency exchange rate changes. In this respect, we may have to understand that the latest energy price spikes have had great impacts so that realistic political responses have been required greatly.

Toward an exit

Meanwhile, problems regarding consumption subsidies have not been resolved over more than 10 years since the G20 Pittsburgh Summit. In fact, the drastic fuel price change alleviation subsidy programme may run counter to some government policies, such as energy conservation and electric vehicle promotion. The timeframe, which was supposed to be until March 2022 when the programme was established, has been repeatedly extended. Furthermore, combined with the increase in the cap subsidy unit price, the programme's spending size inflated from the initially planned level of ¥80 billion to as much as ¥3 trillion by December 2022, topping revenue from a 1% value added tax.

In September 2022, Indonesia had no choice but to reduce subsidies for gasoline and diesel oil due to the swelling size of fuel subsidies. In the same month, the United Kingdom announced Growth Plan 2022¹¹ including energy price controls, leading to concern about fiscal deterioration¹² that prompted the pound sterling to hit a record low against the dollar, with British bond prices plummeting to boost interest rates.

Given such situation, a proposal for Japan is considered in the following, with the fiscal burden issue taken into account.

Analysis on a draft proposal

The drastic fuel price change alleviation subsidy programme, which was developed over the short term with priority given to the early alleviation of burdens, is not a perfect system with various challenges fully taken into account. It may be important to consider how to overcome various challenges and give consideration to the Japanese economy, people's livelihood, and public finance.

Meanwhile, it is not realistic to reform the core of the ongoing programme. Given this point, we would like to propose the following measures to improve the programme as a trial only:

- 1/ Clarify the programme as alleviating drastic change,
- 2/ Mitigate fiscal burdens (beneficiaries' burdens), and
- 3/ Prevent wrong signals from being sent (to avoid inconsistency between policies).

The basic purpose of providing subsidies during a high gasoline price period is maintained. After subsidisation is suspended with retail gasoline prices falling below the standard level, however, the government should recover part of the subsidies to reduce burdens on taxpayers. Specifically, the government should collect money equivalent to

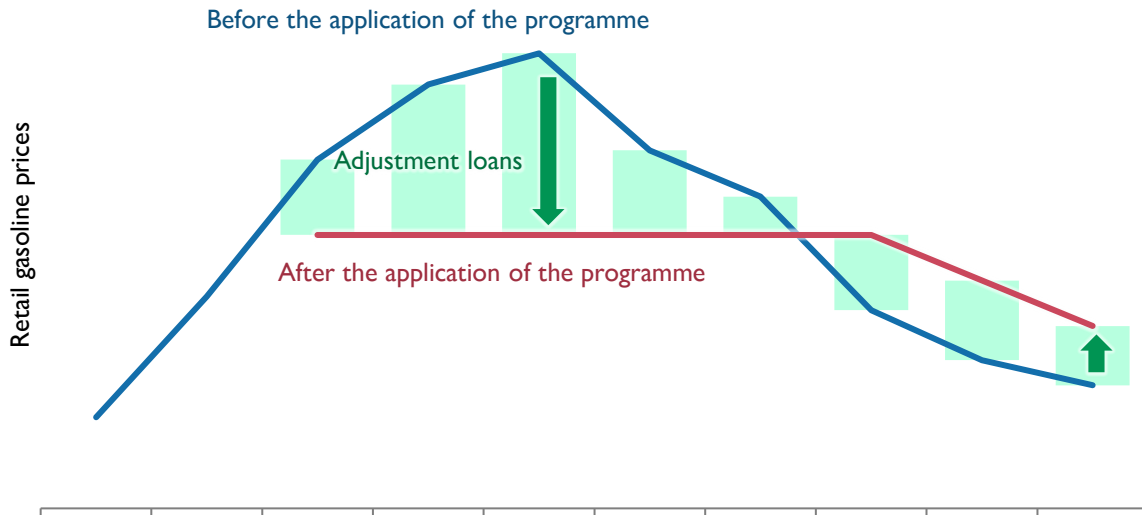
¹⁰ <http://www.g20.utoronto.ca/2021/210723-climate-energy.html>

¹¹ <https://www.gov.uk/government/publications/the-growth-plan-2022-documents/the-growth-plan-2022.html>

¹² Measures to counter energy price spikes were estimated to cost £60 billion (about ¥10 trillion) in six months from October 2022. Tax cuts, another pillar of the plan, were projected at £45 billion (about ¥7 trillion) over a year. However, the government withdrew tax cuts for high-income earners (billions of pounds) on 3 October and almost all others on 17 October.

subsidies minus clerical costs from the petroleum product wholesalers that receive the subsidies (Figure 8). In this case, subsidies may be technically replaced with interest-free adjustment loans for partial repayments¹³.

Figure 8 | Illustrated proposed revision to the drastic fuel oil price change alleviation programme



Until the government completes the collection, gasoline prices may rise¹⁴. However, the purpose of alleviating drastic changes to suppress wild fluctuations may be demonstrated more clearly. The government's partial recovery of its payments may work to minimise the programme's impact on public debt. At the same time, the programme may be understood as an emergency measure, contributing to easing its inconsistency with energy conservation and low-carbonisation policies. As a matter of course, however, this kind of proposal may contain various challenges. We would be pleased to see the proposal contributing to policy debates.

Implications of the subsidy system

European countries have implemented and planned energy consumption subsidies and price controls that feature far larger scales than Japan's drastic fuel oil price change alleviation subsidy programme and even indicate the risk of fiscal deterioration. Such responses to energy price spikes in Japan and other countries indicate that their citizens, at least under the current situation, have recognised not only the importance of low-carbonisation but also people's and industry's heavy dependence on oil and other fossil fuels and the necessity to secure quantitative energy supply and stabilise prices. Regarding realistic responses towards low-carbonisation, debates are seen on timeframes, technologies, stakeholders' and users' costs for infrastructure development, and their impacts. This may demonstrate how complicated the problems are with realistic responses towards low-carbonisation and the significance of the cost problem.

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¹³ It may be indispensable to consider various market conditions in contemplating this mechanism.

¹⁴ Consumers may only face prices after the suppression of price fluctuations, meaning their overall payments remain unchanged.