

The Great East Japan Earthquake and Lessons Learned

~Oil and Electricity~

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1. Oil Supply in Emergency

Oil supply disruption after the 3.11 Earthquake (2011)

Damages

- ✓ 6 refineries in Kanto and Tohoku were shut down.
- ✓ The refining capacity of Japan decreased to 70%.
- ✓ 40% of the gas stations in Tohoku were shut down.
- ✓ The logistics of the oil supply chain collapsed.



Initial Emergency Response Measures Taken

March 11 METI (Ministry of Economy, Trade and Industry) set up 24-hour operation room to cope with urgent demands for oil products.

March 12 An “improvised” public-private partnership for emergency supply was established immediately. METI requested PAJ (Petroleum Association of Japan) to transfer oil product stocks to devastated areas and to activate oil refineries to increase production.

March 14 METI lowered 70-day private sector stockholding obligation down to 67-day

March 18 Oil companies accelerated joint supply operations, delivering oil products to the damaged areas in cooperation.

March 21 METI lowered private sector stockholding obligation down to 45-day . 3

Distribution problems

We had stocks, but did not have enough distribution capacity.

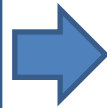
Damages and difficulties in the most stricken area

Ports, railways, and roads were damaged everywhere



Transportation of oil products from other areas was difficult

3 refineries in the area were heavily damaged and shut down



Oil refinery in the area was almost stopped

40% of the gas stations were shut down in the area



Many requests for supplying drum-canned fuel and setting up temporary gas stations from the area

A large orange arrow pointing downwards from the text boxes above to the 'Key Lesson Learned' box.

Key Lesson Learned

It is pivotal to establish regional resilient supply chain to ensure stable supply of oil products in stricken areas when distribution from outside falls short.

● Background

Based on the lessons from the Earthquake, METI amended the Oil Stockpiling Act to secure a stable supply of oil products in the event of disasters in a specific area.

<Major amendments>

1. To relax the requirement for the release of the government oil reserves

- The Minister can release the reserves not only in case of an oil supply disruption from oil producing countries, but also **in case of supply shortfall in a specific area caused by natural disasters.**

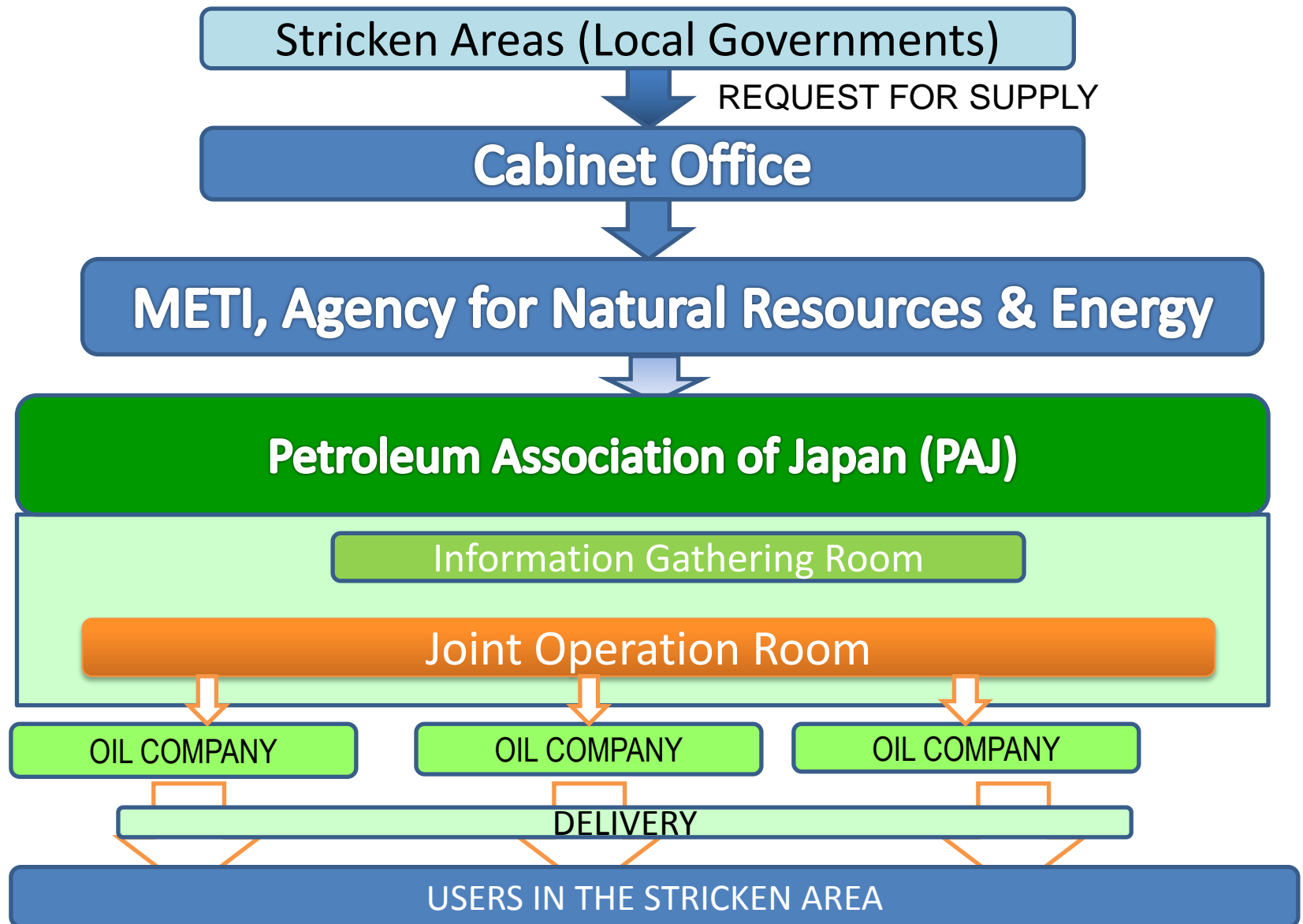
2. To establish the Emergency Cooperation Plan by the designated oil companies

- The designated Oil companies are obliged to prepare **“Emergency Oil Supply Cooperation Plans”** to support each other in order to maintain supply chains even in case of severe supply chain disruption.
- **The Minister can order the enforcement of “Emergency Oil Supply Cooperation Plans”** on oil companies, in the event of supply disruption caused by a disaster.

3. To expand the government oil product reserves

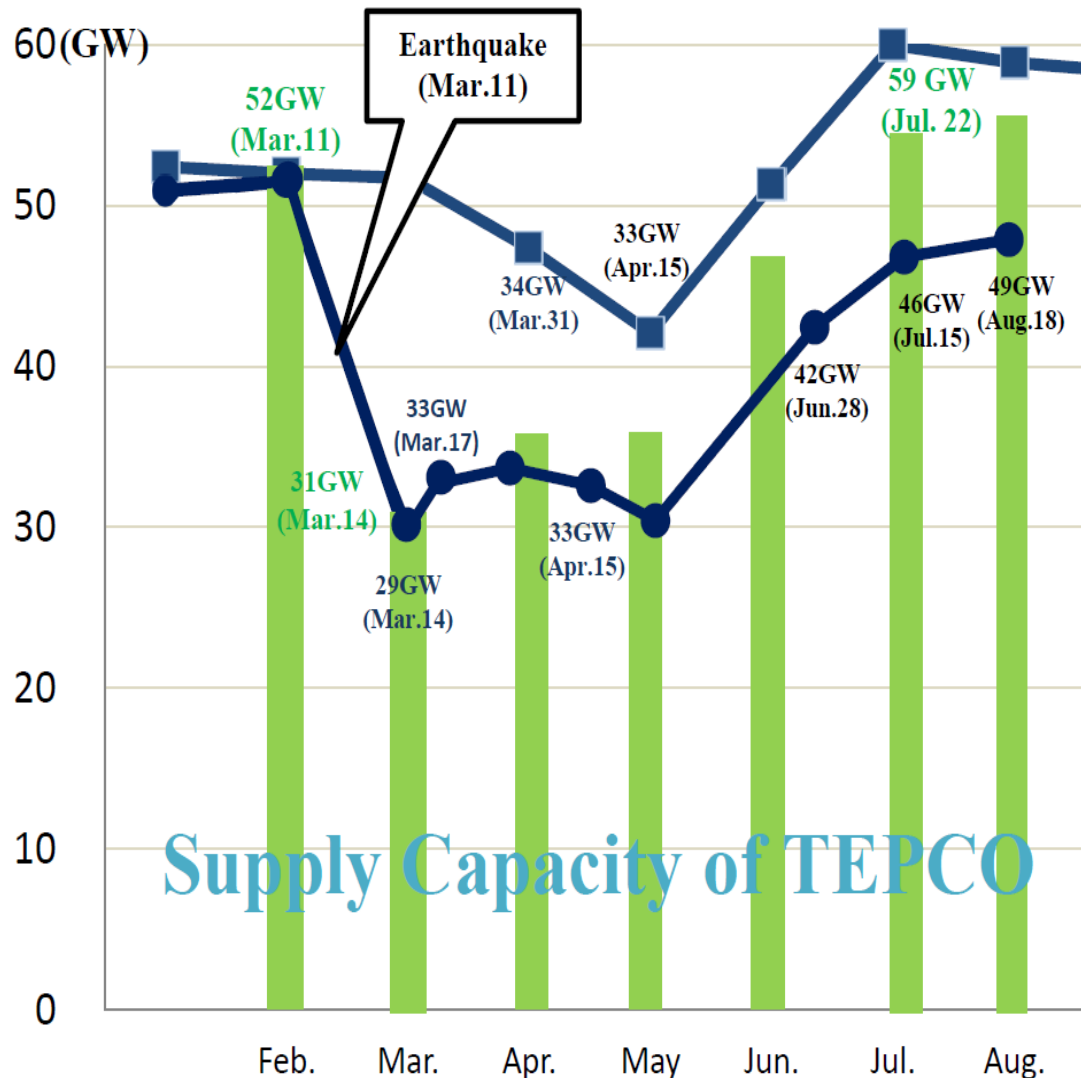
- **METI has reviewed management of the government oil product reserves in aiming to expand their sorts and amount.**

Flow of Oil Supply Requests



2. Electricity Saving Challenges

Impact on Energy Supply/Demand in Japan



- Tokyo Electric Power Company supplies electricity 42 million people and 40% of Japan's GDP.
- It lost 40% of its generation capacity just after the earthquake and tsunami.

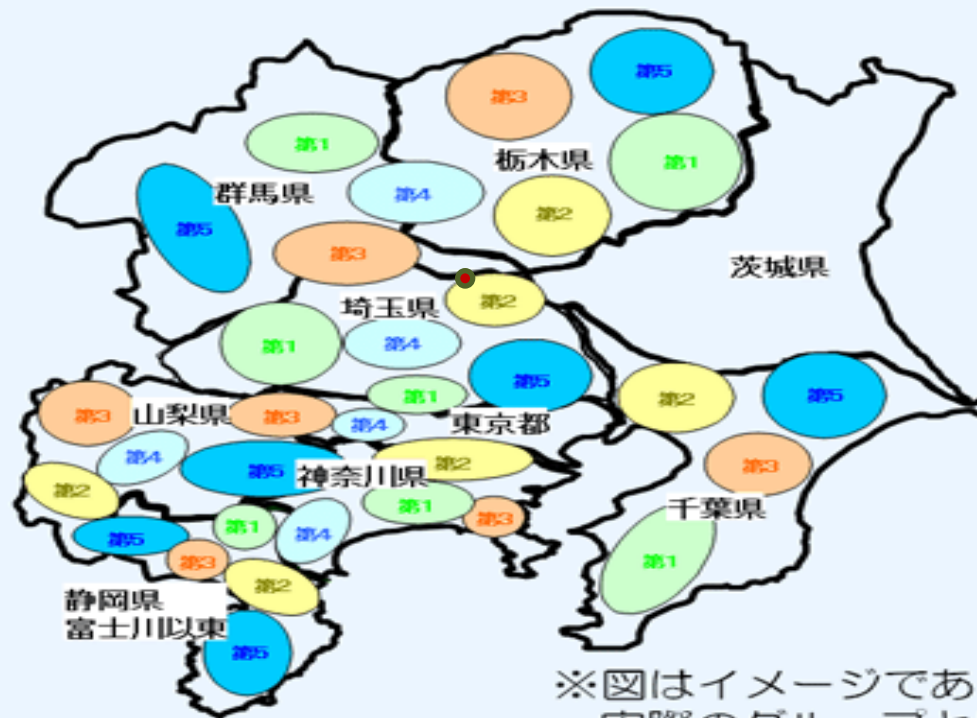
- Peak Demand of the Month in 2010
- Peak Demand of the Month in 2011
- Supply Capacity of TEPCO in 2011

The Planned Rolling Blackouts

- A large decrease in electricity supply capacity in the service area of TEPCO and Tohoku EPCO.
- To cover the supply-demand gap, these electric companies implemented **rolling blackouts** as unavoidable emergency measures in March.

Outline of the rolling blackouts

TEPCO service area



※図はイメージであり、
実際のグループとは異なります

第1グループ	A	栃木
	B	群馬
	C	埼玉 多摩地域
	D	千葉
	E	神奈川 静岡
第2グループ	A	栃木
	B	埼玉
	C	千葉
	D	多摩地域 神奈川
	E	山梨 静岡

第3グループ	A	栃木、群馬
	B	埼玉、多摩地域 群馬・山梨の一部
	C	千葉
	D	神奈川 静岡の一部
	E	山梨、静岡
第4グループ	A	栃木、群馬 埼玉の一部
	B	埼玉、東京都区内
	C	多摩地域
	D	神奈川、静岡 1-多摩地域の一部
	E	山梨
第5グループ	A	栃木
	B	群馬、埼玉、 東京都区内
	C	千葉
	D	神奈川、多摩地域 山梨の一部
	E	山梨、静岡

Demand Side Measures

- ▲15% demand reduction target for large users, small users and households
- Large users (> 500kW) : Based on the Electricity Business Act (Article 27)
- Small users (< 500kW) : the government encouraged to map out a voluntary plan through orientation by visit.
- Households and individuals: “Menu of Electricity Saving Measures” through TV, newspaper and website.

Ad on newspaper

Standard Format for Action Plan

Menu of Electricity Saving by Households

Lessons Learned ?

- 1. Regional resilient supply chain**
- 2. The coordination between stakeholders such as government and industrial association**
- 3. Reliable information**