Situation of Rolling Blackout Implementation

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Ministry of Economy, Trade and Industry

1. Progress

(1) Because of the Tohoku-Pacific Ocean Earthquake on March 11, Tokyo Electric Power Company (TEPCO) electricity supply capacity was reduced by about 21 million kW (Note 1) (approximately a 40% decrease from about 52 million kW to about 31 million kW). As a result, while TEPCO estimates a peak demand of about 41 million kW in this period, there remains a considerable shortage of about 10 million kW.

(Note 1) This amount is equivalent to the total electricity supply capacity in Japan around 1960 and in Malaysia at present.

(2) As a countermeasure against this unprecedented shortage, it was judged that the restriction of total power (restriction of the total power consumption during a certain period) would not be an adequate means to prevent the demand at its peak from exceeding the supply for the following reasons:

1) Since electricity, by its nature, cannot be stored, the supply side should satisfy demand at all times. The electricity network (system) needs to have the supply capacity to satisfy peak demand.

“Restriction of total power consumption” is to control the total amount of electricity consumption for a certain period, and cannot securely control the peak demand at all times. Therefore, even under such a restriction, peak demand may exceed supply capacity and may lead to an overall unstable electricity network (system), in that case we cannot avoid wide scale electricity supply stoppages (large-scale blackouts).

2) Further, since the gap between supply and demand is quite large at this time, reduction of consumption by businesses and residential sectors, in addition to industry, is essential. However, consumption in general households, in particular, cannot be securely controlled by restricting the total amount of electricity consumption.

(3) Thus, in order to properly maintain the balance between supply and demand of electricity at times of peak demand and to avoid unpredictable large-scale blackouts, “Scheduled (Rolling)
Blackouts,” where consumption is divided into groups corresponding to transformer substations and rolling blackouts are implemented in successive groups, has been carried out (Note 2).

(Note 2) TEPCO decided and announced on March 13 that it would implement rolling blackouts. Tohoku Electric Power Co., Inc. also decided and announced implementation of rolling blackouts on March 15, but it has not actually implemented them yet.

2. Situation of “Rolling Blackouts” and Implementation

(1) TEPCO’s rolling blackouts are implemented as follows: consumers in TEPCO’s jurisdiction are divided into five groups, and the supply of electricity is stopped for the areas of one group after another according to a predetermined schedule (the period from 06:20 to 22:00 is divided into five zones and blackouts are conducted for three hours at most for each blackout). When implementing blackouts, measures are taken to minimize the impact on the lives of the people such as lifelines.

Note that rolling blackouts will not be carried out in Tokyo’s 23 wards (there are some exceptions) serving as critical parts of the capital, and for some parts of Ibaraki and Chiba Prefectures, which are areas affected by the earthquake.

(2) Rolling blackouts started on March 14. On the first day, they were carried out in some areas and in the evening only. Following this, the blackout implementation areas have been expanded as the demand for electricity has become larger.

(3) On March 17, the demand increased sharply from the morning because of low temperatures with the balance between supply and demand becoming quite tight. If that status had continued, balance could have possibly been lost at the peak demand time in the evening. Minister of Economy, Trade and Industry Kaieda and other officials therefore requested further saving of electricity that afternoon. As a result, the demand was suppressed by the efforts of the people and industry, and a large-scale blackout was avoided.

(4) March 19 to 21 were holidays, so the demand was comparatively small, and rolling blackouts were not implemented.

3. Issues and Measures

(1) While many people consider that implementation of rolling blackouts is inevitable, they call for the improvement of specific implementation. They request better predictability, further information provision on the supply-demand situation and measures to reduce the effects on people’s lives and
industrial activities, and so on.

(2) To satisfy these requests as far as possible, we have adopted the following improvements, for example:

1) Schedule announcements now cover a week in advance rather than just a day in advance (implemented from March 15);
2) Blackouts to be implemented in the morning are announced the previous evening and afternoon blackouts are announced two hours in advance (from March 18);
3) The supply capacity on the current day and the electricity demand for each hour are announced on the TEPCO website and the METI website on a near real-time basis (from March 22) (see Exhibit 1 in Japanese); and
4) The subject areas of rolling blackouts currently divided into five groups will be further divided into subgroups. The order of subgroups where the electricity blackouts are actually implemented will be shown so as to improve predictability (put into practice around March 26) (see Exhibit 2 in Japanese).

(3) We will further improve the operation as required considering requests from both industry and people hereafter.