

# Streamlined EIA Procedures for Power Plant Replacement in Japan

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## Abstract

Generally speaking, replacements of aged thermal power plants lead to reduction of their environmental loads (e.g. GHG emission, air pollutants, land development, etc.). Thus, such “load-reducing replacement projects” should be encouraged and accelerated from the environmental point of view. In addition, there is an increasing demand in Japan for streamlining the EIA procedures for power plants (including these replacement projects) to accelerate the construction.

The Ministry of the Environment Japan published a “Guideline for Streamlining EIA Methods on Thermal Power Plant Replacements” in March 2012, which has enabled project proponents to significantly reduce the duration necessary for survey and prediction. Along with the guideline, measures to reduce the duration of the reviewing processes by the national and local governments were considered.

With all these efforts, the duration of EIA procedures, which normally takes about 3 years, is expected to be reduced up to 1 – 1.5 years, although we have only a few cases of streamlined EIA procedures so far.

Keywords : streamlined EIA procedures, replacements of aged thermal power plants, load-reducing replacement projects, streamlining EIA methods

## 1. Background

When aged thermal power plants are replaced, more efficient ones with cutting-edge technologies are likely to be introduced. In such cases, replacement projects lead to the reduction of their environmental loads (ex. GHG emission, air pollutants, land development, etc.) as their environmental performances are improved.

According to a survey conducted by the Ministry of the Environment (MOE)<sup>[1]</sup>, such environmental loads as the emission of air pollutants, water pollutants and GHGs were actually reduced in many cases as a result of recent replacement projects.

In addition, ecological impacts caused by the land development are generally limited in these replacement projects, since the new facilities were often built within the premises of existing plants or their adjacent areas.

Thus, such “load-reducing replacement projects” should be encouraged and accelerated from the environmental point of view.

Furthermore, there is an increasing demand in Japan for streamlining the EIA procedures for power plants (including these replacement projects) to

accelerate the construction, as almost all the nuclear power plants are shut down after the disastrous accident of the Fukushima Daiichi Nuclear Power Plant occurred in March 2011.

However, the Environmental Impact Assessment Act (hereinafter referred to as the “EIA Act”) requires the same procedures for these replacement projects as required for new power plants, which normally takes about 3 years.

Taking this into account, the MOE established the way to streamline the EIA procedures for “load-reducing replacement projects” to reduce the duration of the EIA procedures without amending the EIA Act. Two major measures to achieve the streamlining are: (1) to utilize the “Guideline for Streamlining EIA Methods” and (2) to reduce the duration of the reviewing processes by the national and local governments.

## 2. Guideline for Streamlining EIA Methods on Thermal Power Plant Replacements

The MOE published a “Guideline for Streamlining EIA Methods on Thermal Power Plant Replacements”

(hereinafter referred to as the “Streamlining Guideline”) in March 2012 to clarify the streamlining methods that could be adopted by individual proponents during their survey and prediction phases. This guideline was revised in March 2013.

The Streamlining Guideline enables the proponents to implement assessments (especially survey and prediction) in a streamlined manner, and therefore, contributes to reducing the duration of EIA procedures.

## 2.1 Definition of Load-Reducing Replacement Projects

In the Streamlining Guideline, “load-reducing replacement projects,” to which the streamlined methods are applicable, are defined as follows:

1) Replacement projects that lead to the reduction of the following environmental loads:

- Emission of greenhouse gases calculated on the premise that the capacity factor remain unchanged after the replacement
- Emission of air pollutants - peak of hourly value
- Emission of aquatic pollutants - (peak of daily drainage) x (pollutants concentration)
- Discharge of heated water (cooling water) - (increase in temperature) x (hourly heated water discharge)

2) Replacement projects of which ecological impacts caused by the land development are limited (e.g. the project is implemented within the premises of the existing plant or its adjacent area)

Even if a replacement project does not meet all of the requirements above, each part of the streamlining methods below may apply to the project.

## 2.2 Streamlined methods, etc.

The Streamlining Guideline specifies the streamlined methods for survey or prediction on each evaluation item, as well as the requirements. Tables 1 through 4 show some of the methods.

With these methods, survey and prediction duration may be reduced by 1 year or more, if all-year-round surveys such as animal and plant surveys become

unnecessary.

Table 1: Streamlined methods on air quality

Impact on air quality caused by exhaust gas
(Requirements for streamlining)
<ul style="list-style-type: none"> <li>➤ Exhaust emission and its concentration of air pollutants (hourly value and annual value) remain the same or decrease, and,</li> <li>➤ Ground level ambient concentration (hourly value) remains stable or decreases. Etc.</li> </ul>
(Streamlined methods for survey etc.)
<ul style="list-style-type: none"> <li>➤ Concentration measurement may be substituted with data at public air quality monitoring stations.</li> <li>➤ Weather observation may be skipped. (using existing data)</li> <li>➤ Simple comparison of ground level concentration before and after the replacement is applicable as prediction method.</li> </ul>

Table 2: Streamlined methods on water temperature and on marine life

Impact on water temperature etc. and on marine life caused by heated water discharge
(Requirements for streamlining)
<ul style="list-style-type: none"> <li>➤ Heat emission* remain the same or decrease, and,</li> <li>➤ Heated water outlet does not move beyond the range of 100 meters. Etc.</li> </ul> <p>* (increase in temperature) x (hourly heated water discharge)</p>
(Streamlined methods for survey etc.)
<ul style="list-style-type: none"> <li>➤ Simple comparison of water temperature before and after the replacement is applicable as a prediction method.</li> <li>➤ Survey of marine life may be skipped (using existing data). Etc.</li> </ul>

Table 3: Streamlined methods on water quality

Impact on water quality caused by pollutant discharge
(Requirements for streamlining)
<ul style="list-style-type: none"> <li>➤ Level of total nitrogen and total phosphorus as well as the COD (chemical oxygen demand) remain the same or decrease, and,</li> <li>➤ Wastewater outlet does not move beyond the range of 300 meters. Etc.</li> </ul>

(Streamlined methods for survey etc.)

- Water quality measurement may be skipped (using existing data). Etc.

Table 4: Streamlined methods on land animals and plants

Impact on flora and fauna caused by land development.

(Requirements for streamlining)

- Important species are not identified in the project implementation area (or its adjacent area), or,
- Green area within the project area does not change and the total area of habitats of the important species (other than green area) does not decrease, or,
- Habitat data of important species exists in the project implementation area. Etc.

(Streamlined methods for survey etc.)

- Flora and fauna may be excluded from evaluation items, or,
- Survey of flora and fauna may be skipped (using existing data).

### 2.3 Use of Preliminary Survey and Monitoring Data

The Streamlining Guideline also suggests using the data obtained by preliminary survey and environmental monitoring.

For a replacement project, it is considered to be relatively easy for the project proponent to conduct field surveys (e.g. survey of the habitat status of animals and plants) prior to the EIA procedures, when the new one is planned within the premises of the existing plant or its adjacent area. In addition, environmental monitoring has been conducted in many cases related to the operation of the existing plants.

If such data are available, the proponent can:

- Select evaluation items and methods effectively and efficiently in the scoping process, and,
- Utilize the data to complement the results of the EIA, which might dispense with long-term survey.

### 3. Reducing the Duration of the Reviewing Processes

In November 2012, the MOE and the Ministry of Economy, Trade and Industry (METI) published an “Interim Report on Streamlining the EIA Procedures for Power Plants.”

In this report, measures to streamline the EIA procedures are indicated, while maintaining the quality of EIA; reducing the durations of the reviewing processes by the national and local governments were mentioned in addition to utilizing the Streamlining Guideline.

The point is that the reviewing processes of local governments, METI and MOE run parallel with close and earlier information exchange. (Normally they are carried out by turns. For example, MOE does not start its reviewing process until the local governments finish their processes and expresses the comments.) Fig. 1 shows the concept of reducing the duration of the reviewing processes of a draft EIS (EIS: Environmental Impact Statement).

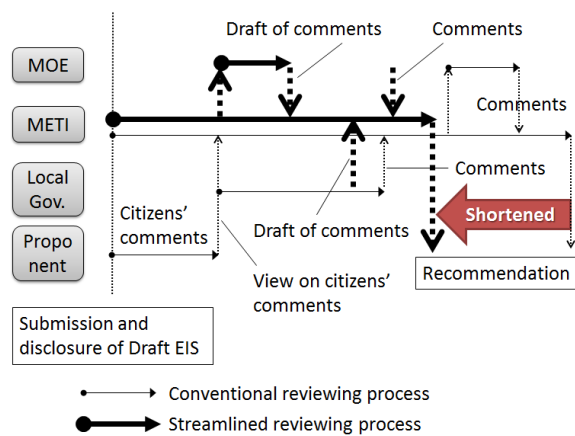


Fig. 1: Concept of reducing the duration of the reviewing processes of a draft EIS

Measures to reduce the duration are also stated in the report including the following:

- The METI requests project proponents to attend the advisory committee meetings if necessary for smooth reviewing,
- The MOE accelerates its own reviewing process and sends the draft of the MOE comments to the METI at an earlier stage in order to reflect it in the METI’s reviewing process,

- The MOE and the METI request local governments to share the information on the draft comments, in order to reflect them in their reviewing processes,
- The MOE submits the final comments immediately after the comments from the local governments were submitted, and,
- The METI, on condition that the draft comments were presented by the local governments by 1 week before the official submission, makes its recommendation in about 3 weeks after the official submission of the MOE comments.

With these efforts including similar efforts about the reviewing processes of a scoping document, the duration of the whole reviewing processes by the national government is expected to be reduced by 100 days at maximum. Also, further reduction is expected with close cooperation of local governments.

In contrast, however, each public comment period within the EIA procedures is untouched to ensure citizens' opportunity to participate in the processes.

The abovementioned measures are also applicable to streamline the EIA procedures for wind farms and geothermal power plants<sup>[3]</sup>.

#### 4. Conclusion

Many thermal power plants in Japan built in the period of high economic growth (the 1960s and the early 70s) need to be replaced<sup>[1]</sup>.

Such replacements of aged thermal power plants with newer, more efficient ones with cutting-edge technologies should be encouraged and accelerated from the environmental point of view.

The MOE, accepting the increasing demand for streamlining the EIA procedures for power plant replacement, clarified the streamlining methods as the Streamlining Guideline, as well as the measures to reduce the duration of reviewing processes by the related governments.

With all the efforts stated in this paper, as well as other measures to streamline the EIA procedures indicated in the interim report, the duration of the EIA procedures, which normally takes about 3 years, is expected to be reduced up to 1 – 1.5 years. These

measures to streamline the EIA procedures can be applied to both ongoing procedures and future ones.

It should be reiterated that it is essential to maintain the quality of EIA while making such efforts to streamline the procedures. The Streamlining Guideline enables the proponents to skip the survey only when the related environmental impacts are considered to be limited, and also, public consultation procedure is untouched while the duration of governmental reviewing processes is reduced.

As we have only a few cases of streamlined EIA procedures so far, the MOE will continue to follow up such examples carefully, to see whether the procedures work well, both for reducing the duration of the EIA procedures and for protecting the environment.

#### [References]

- [1] Report on Follow-up Survey of Power Supply Restoration Projects in 2012FY (March 2013, the Ministry of the Environment) (Japanese only)
- [2] Guideline for Streamlining EIA Methods on Thermal Power Plant Replacement (March 2012, the Ministry of the Environment) (Japanese only)
- [3] Interim Report on Streamlining the EIA Procedures for Power Plants (November 2012, the Ministry of the Environment and the Ministry of Economy, Trade and Industry) (Japanese only)