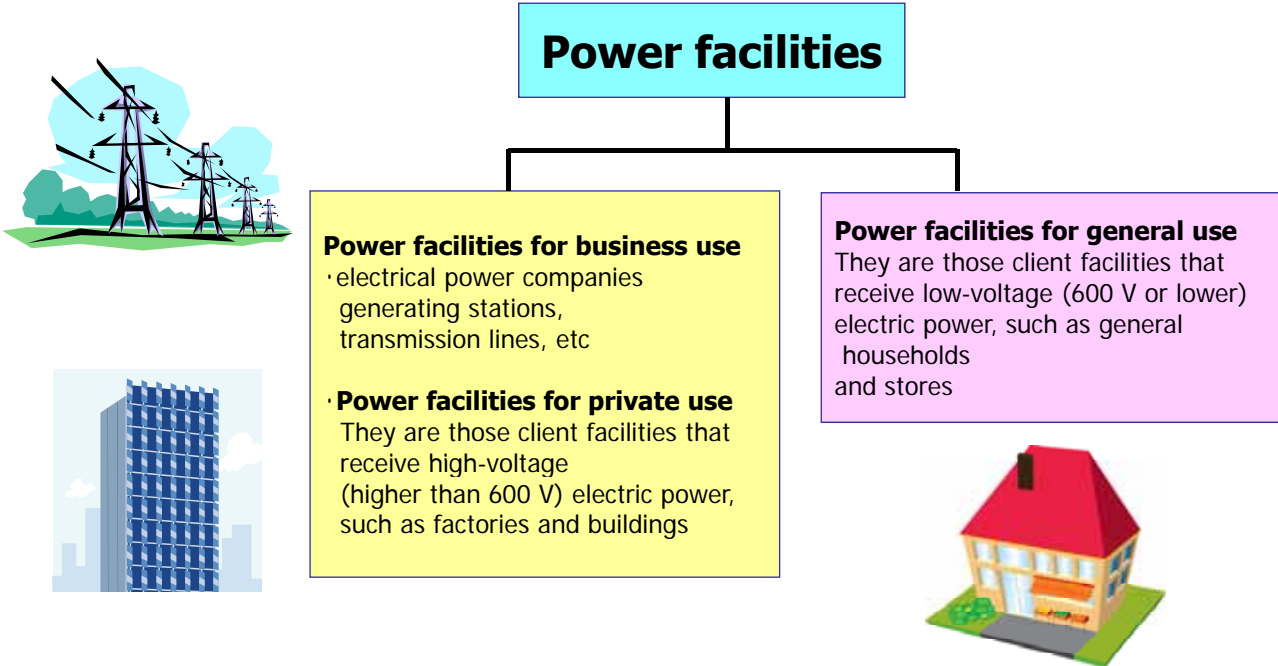


# Electrical safety for housings, etc. in Japan

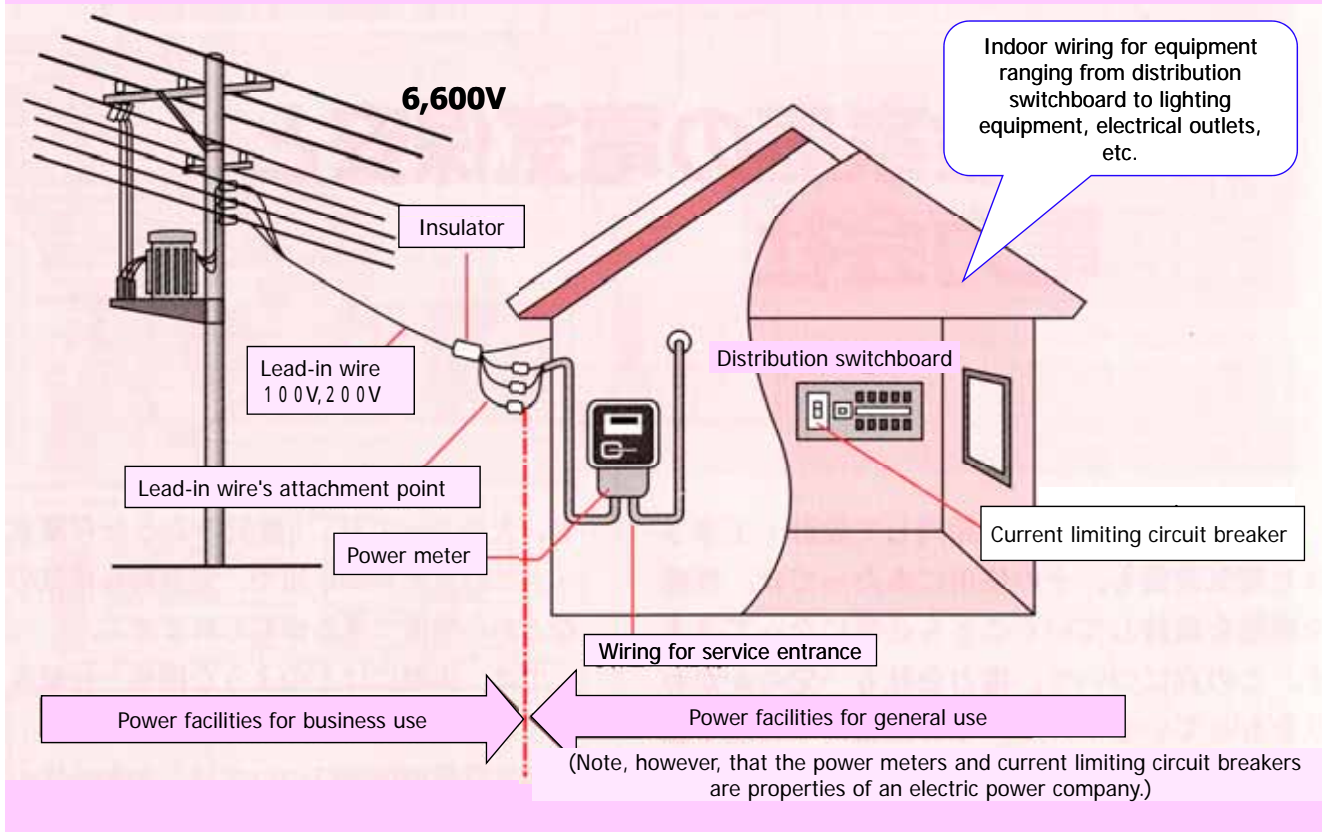
Kansai Electrical Safety Inspection Association  
Department of Electrical Safety Verification

## Electrical safety for general households, etc.

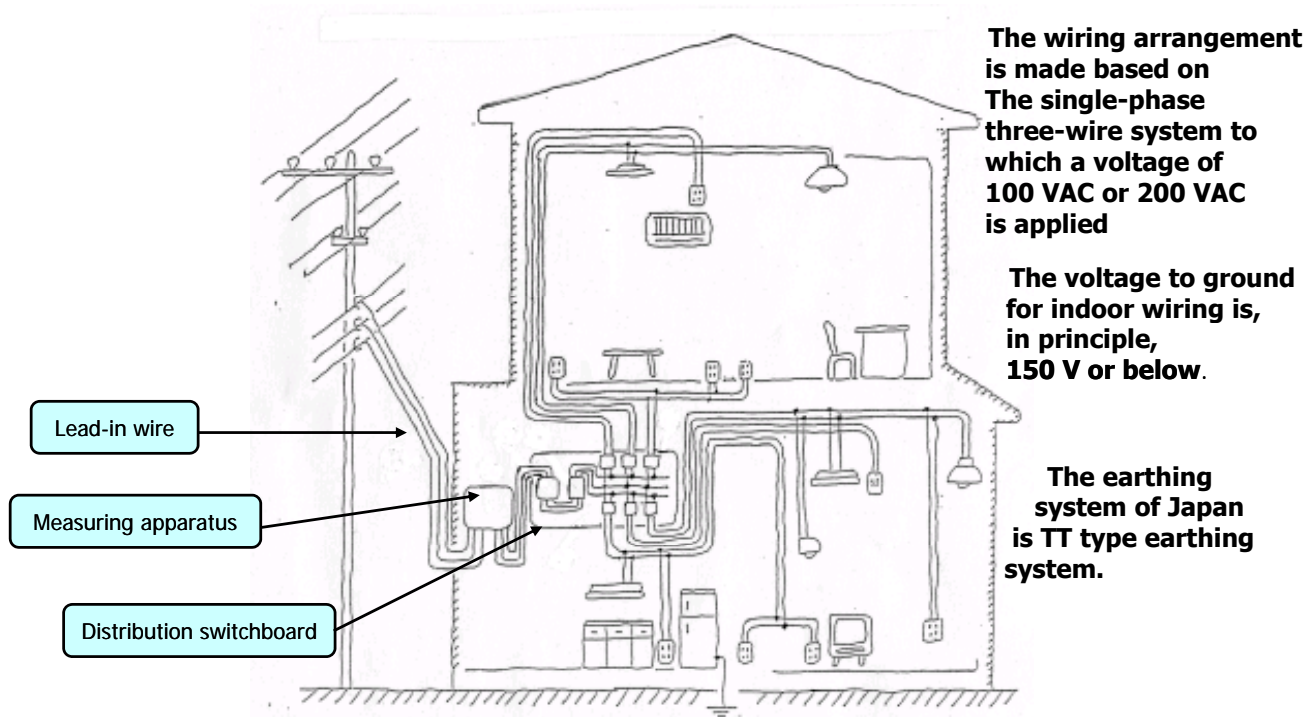
Classification of power facilities



# Classification of power facilities in general households, etc.

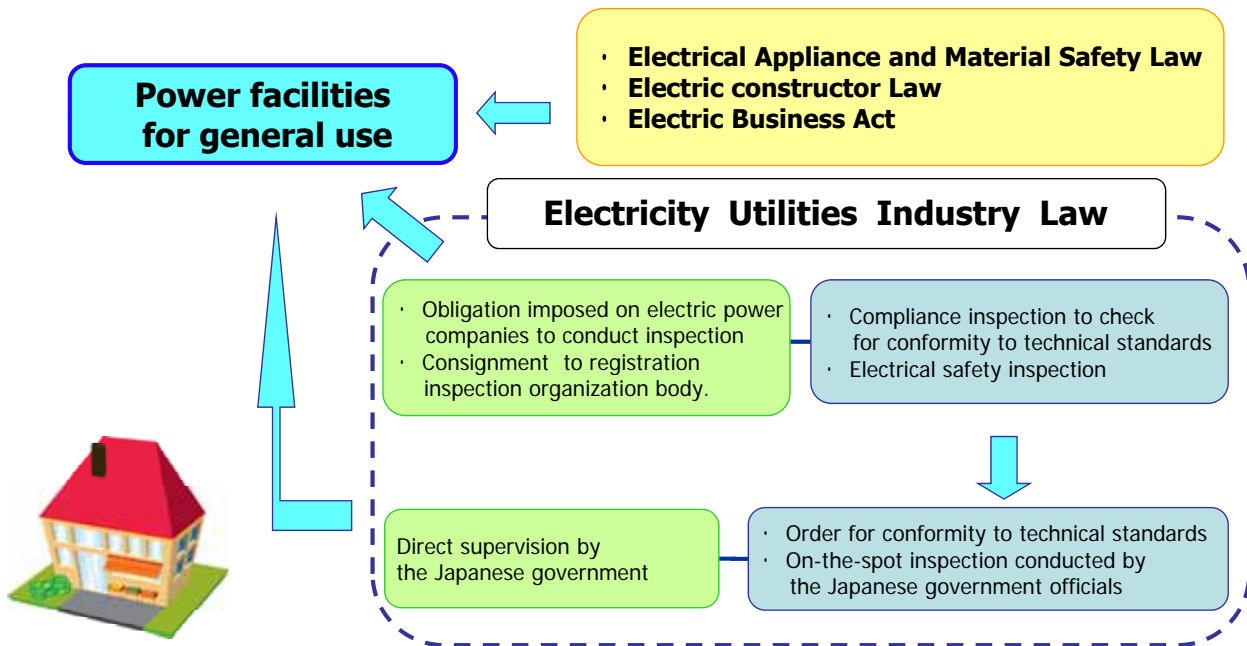


## Wiring arrangement for general households [reference data]

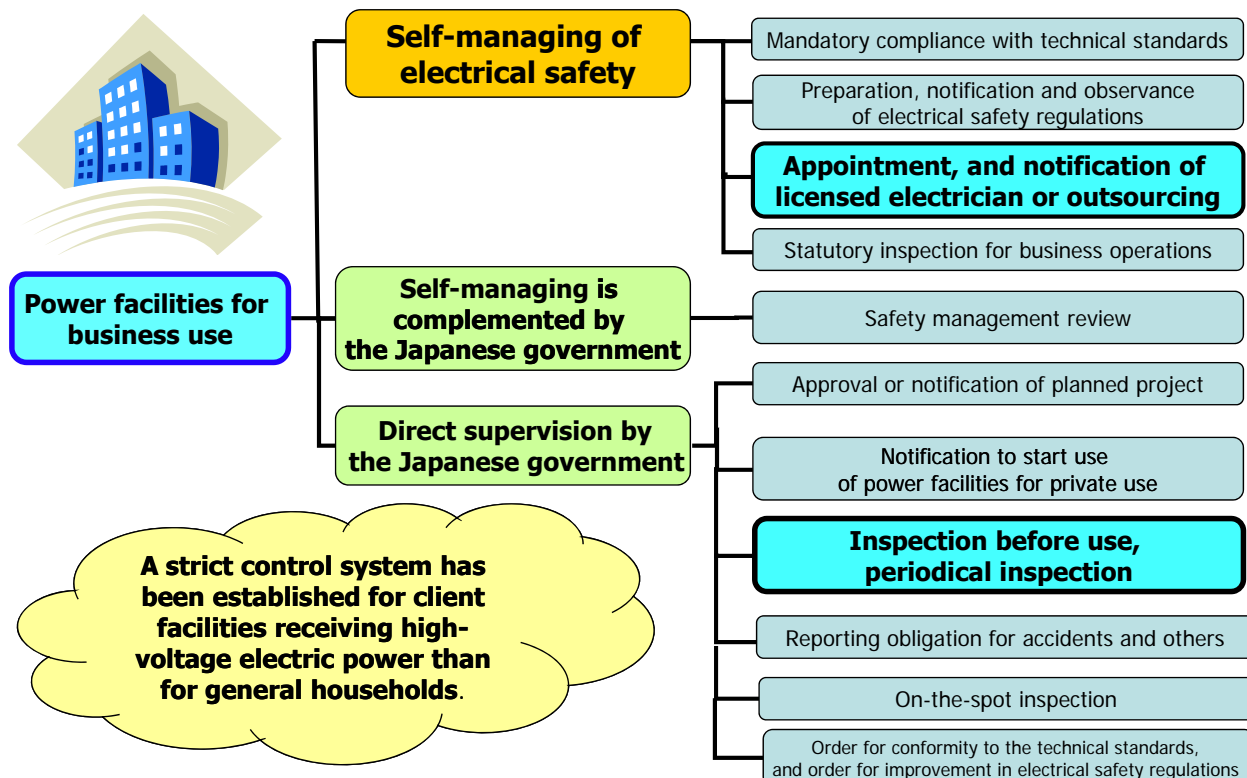


# Electrical safety system and laws, regulations or ordinances for general households, etc.

## Laws to ensure electrical safety



# Electrical safety system for client facilities receiving high-voltage electric power



# Measures to ensure electrical safety in general households, etc.



To be conducted by an electric power company or inspection institute

Final-completion inspection service

Periodic inspection service

Manufacturing stage (Manufacturing and selling of components and materials)

- **Electrical Appliance and Material Safety Law**  
⇒ This law regulates manufacturers and importers.

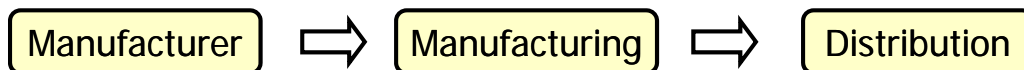
Construction stage

- **Electric Constructor Law and other laws**  
⇒ These laws regulate electric constructors and electric contractors.

Maintenance and operation stage

- **Electricity Utilities Industry Law**  
⇒ This act regulates general households and electric power companies.

## Manufacturing stage (including manufacturing and selling of electrical components and materials)



- Compliance with technical standards for electrical appliances and materials



The electrical appliances and materials include electrical wires, electrical wiring devices and equipment, and electrical equipment for home use.

- Approval by a third party in private sector for quality certification of electrical appliances and materials



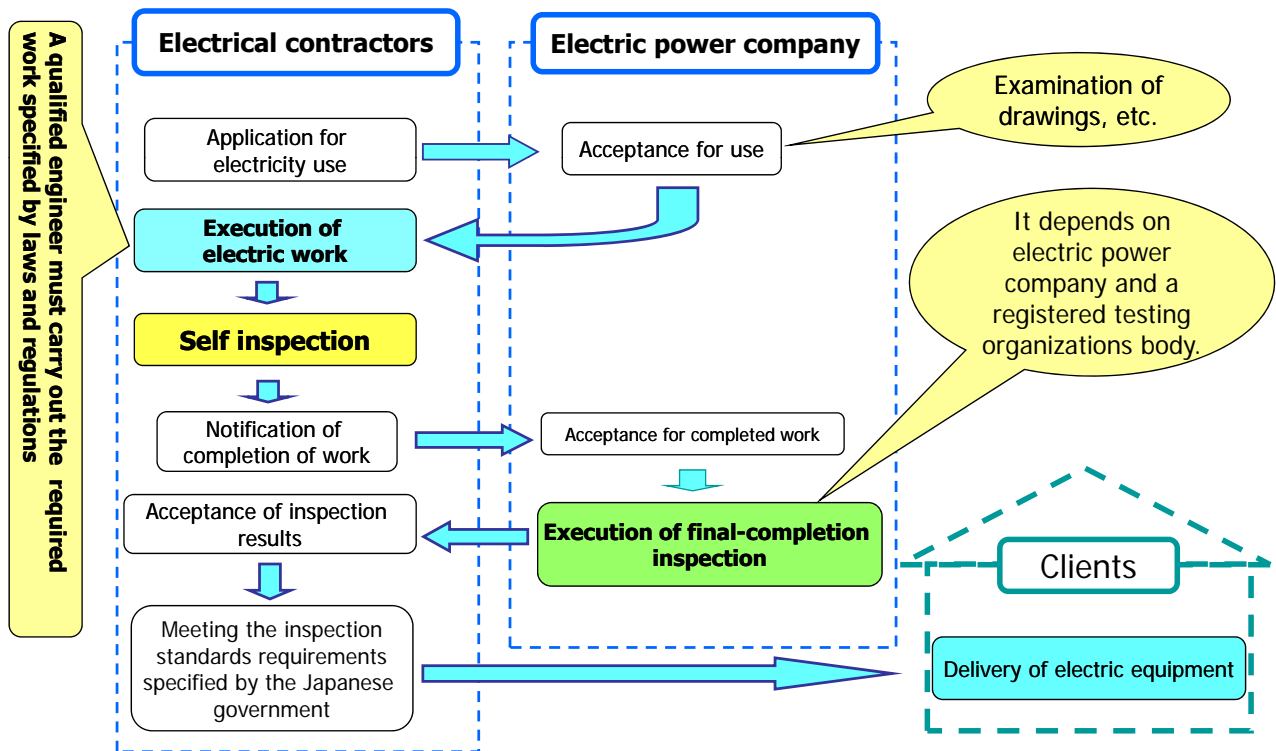
Private-sector institutions which conduct safety tests, etc. for electric products

- Sample-purchase inspection, modification of products, etc.

In accordance with the “Consumer Products Safety Act”, recall and other measures are taken against poor-quality products, imitation products, etc.

# Construction stage

## Workflow of quality assurance during electric work



# Types and frequency of inspection services at the maintenance and operation stage

### Final-completion inspection

This inspection is performed when a power facility for general household, etc. is installed or expanded and modified

- Confirmation of drawings as well as of facility and equipment
- Verification of insulating state, etc.



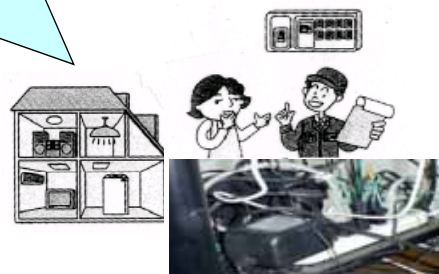
- The periodic inspection service is performed once every four years.
- This inspection is performed once or more every year for such facilities as schools, hospitals and swimming pools.

### Periodic inspection

**Inspector** – An electric power company or an inspection agency which is listed on the Japanese government's registry (electrical safety inspection association, constructors' association, etc. of each of Japan's prefectures or city governments).

- Checking for electric leakage
- Inspection of power facilities
- Brief interview with clients about any problems
- Electrical safety instructions (awareness-raising activities for electrical safety)

Once every four years



# Standards for electrical safety inspection

## [Engineering standards of electrical facilities and interpretation thereof]

- Earth works pursuant to Article 19, insulation performance of low-voltage electrical circuit pursuant to Article 58, etc.



Earth work

## [Policies for periodic inspection of power facilities for general use]

### Content and frequency of inspection

The inspection should be made once or more every four years to check to see if the electrical equipment for general households, etc. complies with the “Engineering standards of electrical facilities” from the date on which the previous inspection was conducted. (Note, however, that there are some pieces of equipment to which this inspection frequency does not apply.)

### How to conduct periodic inspection

- Insulating state should be verified through measurement using an insulation resistance tester or a leakage current measuring device.
- After asking questions about any problems, the inspection is performed for any visible areas and a check is made to see if there is any defective part.

### Promoting modification

- The inspection shall be conducted once again in the event that a client who has been informed of defect of his/her facility notifies that such facility is already modified.
- A modification shall be made as required to the equipment which is deemed to be important in terms of electrical safety for prevention against poor insulation, etc.

### Keeping customers well informed of safety precautions when visiting with them for periodic inspection

- Electrical safety precautions should be made well known to customers to prevent risk associated with use of electricity.

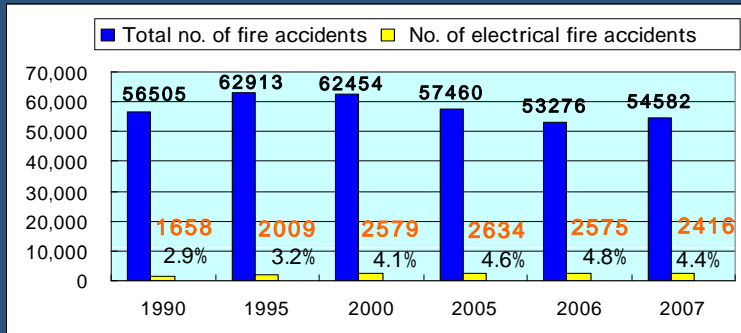
## Historical background and evaluation

Revised year of system	Intervals at which a periodic inspection is conducted	
	General households, etc.	Movie theaters, etc.
1891	As required	None
1896 *1	Once every year	Once every year
1911	Once every year	4 times every year
1949	Once every two years	Twice every year
1965 *2	Once every two years	Once every two years
From 1989 onward	Once every four years	Once every year

\*1 In 1896, a periodic inspection system was institutionalized.

\*2 In 1965, scope of electric equipment for and responsibility for electrical safety of general households, etc. was clarified.

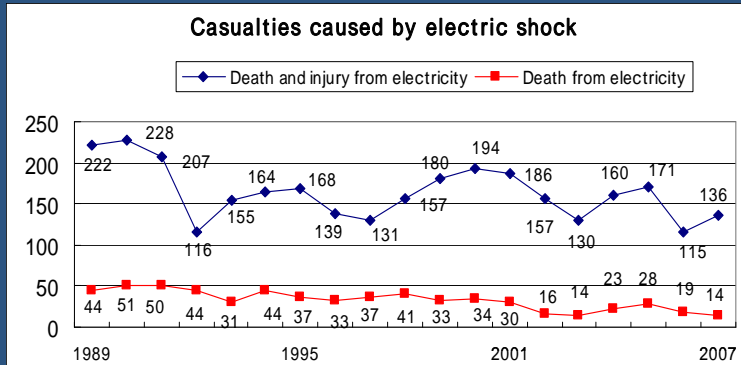
# Changes in electrical fire accidents and other accidents resulting from electric shock



A Fire Defense Agency disaster prevention information room [fire annual report]

Electrical fire accidents account for about 4% of the total fire accidents (54,500) which occurred in 2007 nationwide.

Generally, electrical fire accidents tend to decrease.

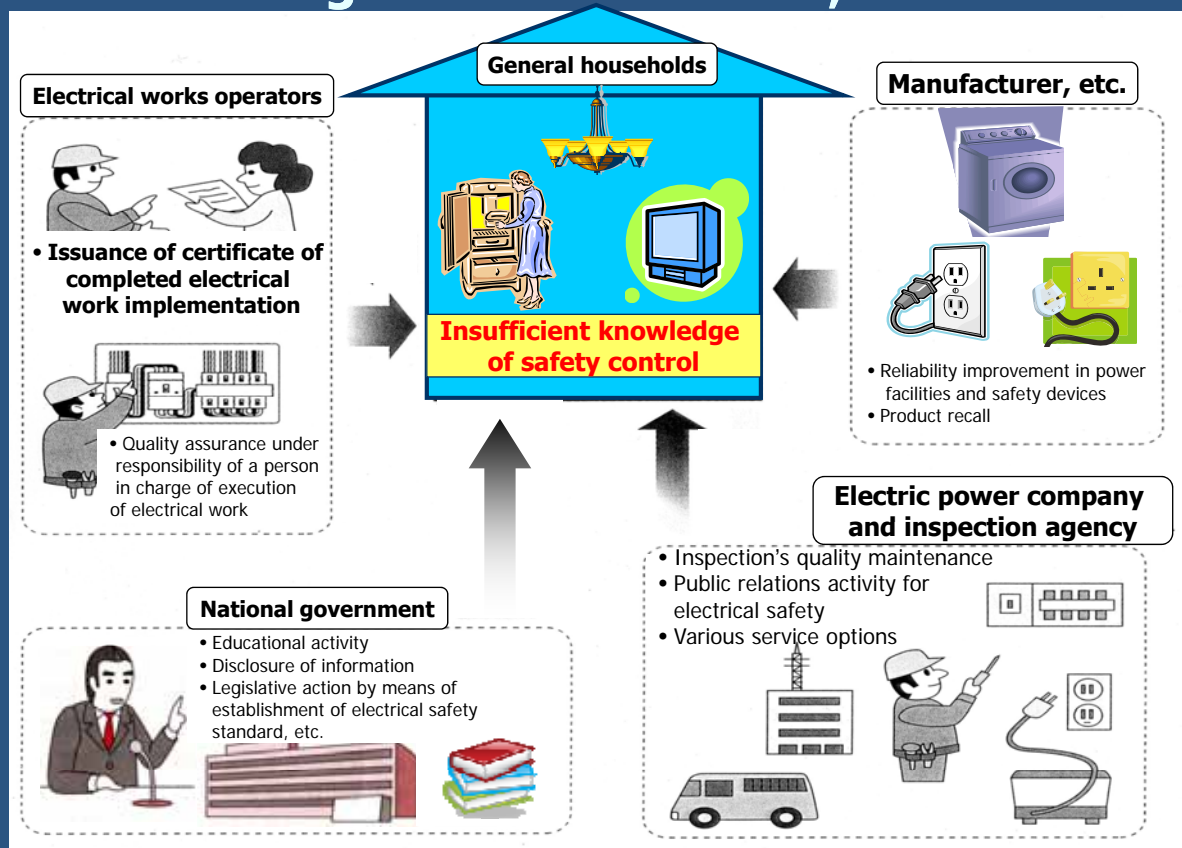


Accidents resulting from electric shock have been on a downward trend in recent years, with deaths from electric shock now 14 per year. According to the annual statistics, the rate of death from electricity is equivalent to 0.2 persons or less out of 1-million people.

In this past few years, no death accident caused by electric shock has occurred in general households.

The data shown above is based on the survey data of Safety Division of Industrial Safety and Health Department in Labour Standards Bureau of the Ministry of Health, Labour and Welfare in Japan

## Social system regarding electrical safety for general households, etc.



# Introduction to our inspection services

Visit the general family; and inspection in being at home

Typical amount of time required for a periodic inspection service for general household is about 10 minutes, and it costs about 1,000 yen.



Insulation resistance being measured with a distribution switchboard



Explanation about safe use of electricity

For those customers who are not at home or whose power supply cannot be cut off, the insulating state is checked for any defect.



Leakage current measurement at a customer's site where an ordinary measurement cannot be carried out readily.



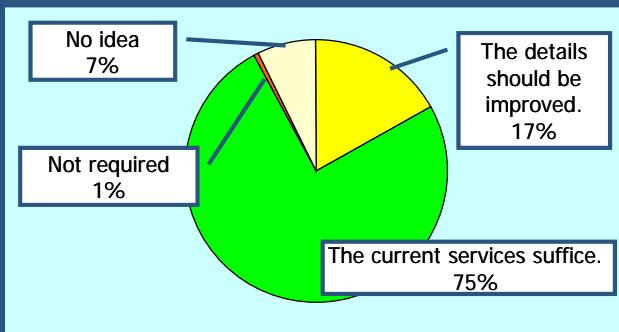
Verification of insulating state through leakage current measurement (The acceptable leakage current value should be 1 mA or less.)



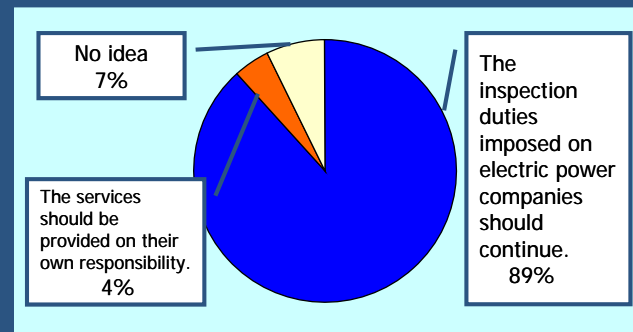
# The future of electrical safety for general households

A consciousness survey was conducted regarding the current inspection system among 708 persons who were randomly selected nationwide.

Results of questionnaire survey concerning evaluation made on details of the current inspection services



Results of questionnaire survey concerning the current contents of the inspection duties imposed on electric power companies



Source: Data from Inspection Vision Workshop of Nationwide Liaison Conference for Electrical Safety Inspection Associations

## Customer comments on the current inspection system

**As seen in the existing system, it is a good method for the current inspection services to be provided evenly and continuously. (Customers also entertain expectations for the system because it will help prevent fire spreading from neighboring houses.)**

**The current inspection system is better in order for us to live at ease on aging society.**

**The current bill collection system whereby about 20 yen of inspection charge is included in monthly electricity rate is better than other billing method by which inspection charge is collected for each inspection service.**

**The current inspection system and method are considered better, because the relevant inspection service is required to be provided by a reliable service provider such as an electric power company.**

Source: Data from Inspection Vision Workshop

# Progress of technological innovation and basic policy for future inspection service

- ❖ The Electrical Safety Inspection Association has been striving aggressively to provide attentive, conscientious and effective inspection services which can meet the needs of its customers.
- ❖ While at the same time, we at the Association think that IT (information-technology) revolution and development of equipment technology, such as solar photovoltaic technology, to deal with environmental problems will have a significant effect on the current inspection services and their methods as well.
- ❖ For this reason, we, as one of the members of the electrical safety inspection associations in Japan, also need to examine our basic policy for the inspection services and the association's work tasks into which a new technology will be brought, while closely monitoring the changing trends in development of such technology.