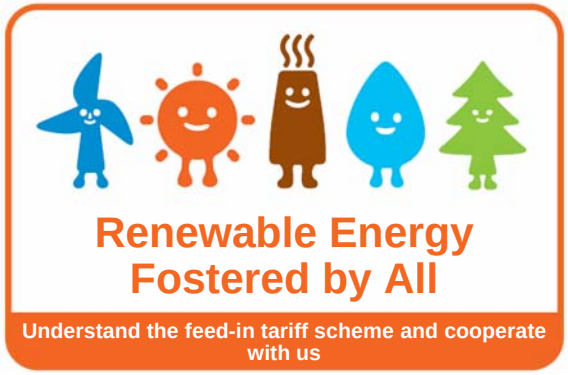
# Feed-in Tariff Scheme for Renewable Energy

- Launched on July 1, 2012 -




December 2011

Agency for
Natural Resources and Energy

# Progress of examination

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■ Feed-in tariff scheme for renewable energy has been examined as follows:

From November 2009 A project team on Japan's Feed-in Tariff Scheme (five meetings and six hearings were held)

March 2010 Options for the scheme were presented and opinions were invited on the website (318 opinions were received until May 2010)
From April 2010 Regional forums were held (Explanatory meetings were held at 21 places throughout Japan and opinions were invited)

July 2010 "The framework of the system" was announced
From October 2010 Examination of detailed design was started at the council (Advisory Committee for Natural Resources and Energy)

From November 2011 Renewable energy symposium was held (at nine places throughout Japan)
December 2010 "Report on the Detailed Design (Draft)" was presented and public comments were called for (8840 comments were received until January 2011)

February 2011 Compilation of "Report of Feed-in Tariff Scheme Subcommittee"
March 2011 Cabinet decision of the bill
Passing and approval of the bill (August 26)

# Summary of the Feed-in Tariff Scheme for Renewable Energy

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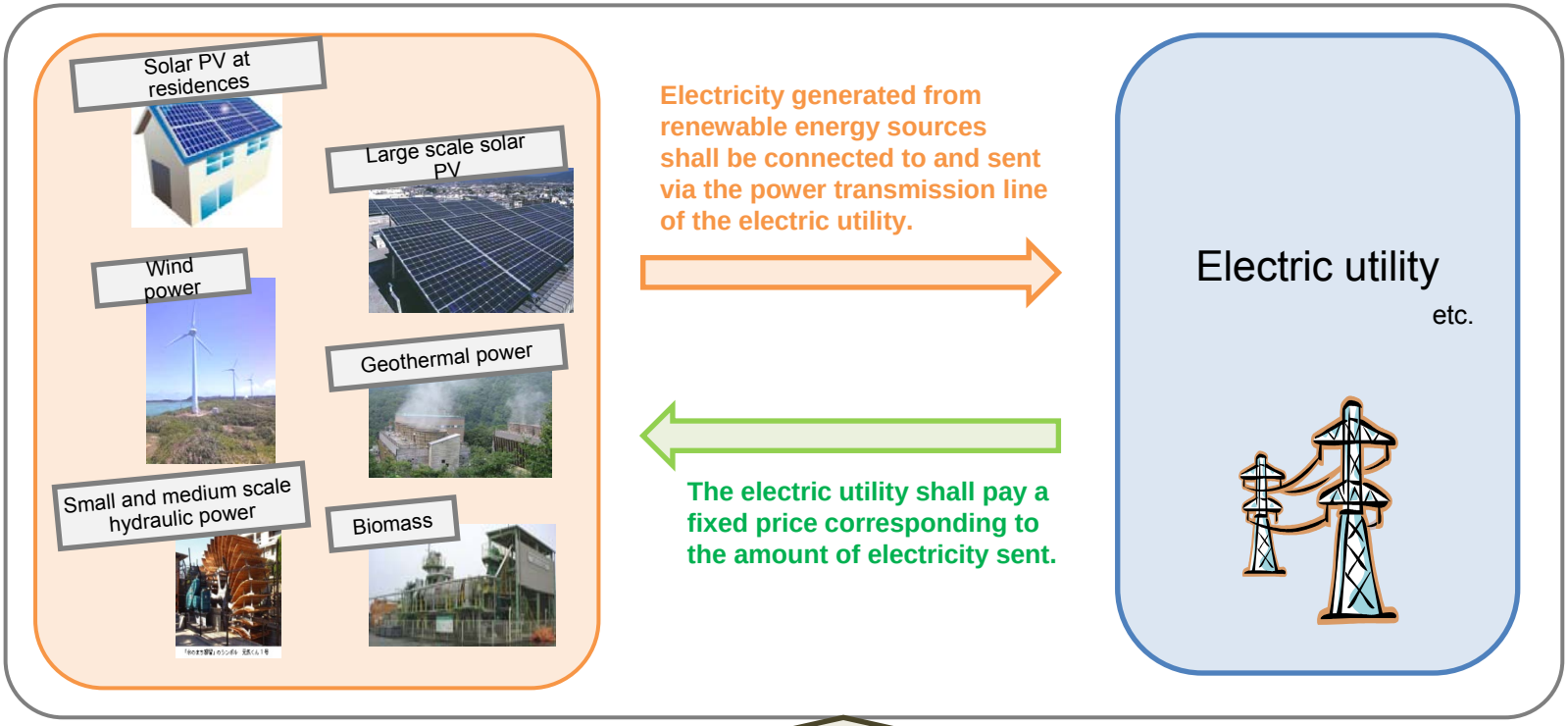
- This is a scheme to foster renewable energy in Japan with the help of all electricity customers.
- Electric utilities will be obliged to purchase electricity generated from renewable energy sources such as solar PV and wind power on a fixed-period contract at a fixed price. This will promote the introduction of renewable energy.
- Costs of purchased electricity generated from renewable energy shall be transferred to electricity customers all over Japan in the form of a nationwide equal surcharge. They shall pay the surcharge for renewable energy proportional to electricity usage.



# Mechanism of Feed-in Tariff Scheme for Renewable Energy

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Those engaged in the power generation business using renewable energy sources

Solar PV

Small and medium scale hydraulic power

Wind power

Biomass

Geothermal power

Those who generate power at home

Sale of electricity from renewable energy sources

Purchase of electricity at a fixed price for a government specified period

Electric utility

Deliver of purchase cost

Submission of collected surcharge

Cost bearing adjustment organization
(Organization to collect and distribute the surcharge)

Specification of purchase price and purchase period

Approval of facilities

Procurement price calculation committee
(appointment of five committee members requires consent by the Diet)

Government

Decision of Surcharge unit price per kWh

Collection of surcharge together with the electricity charge

Electricity supply

Electricity customers

# Renewable energy to be purchased

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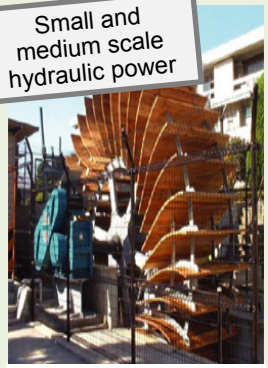
For industrial use

Solar PV

Geothermal

Small and medium scale hydraulic power



Genki-kun No. 1, symbol of "Tsuru City, Town of Water"

Wind power

Biomass

- Fives types of energies:
  Solar PV, Wind power,
  Small and medium scale hydraulic power (generation of power below 30,000 kW),
  Geothermal power and Biomass (that does not affect the existing applications such as paper and pulp)
- Those who can newly start power generation using approved facilities

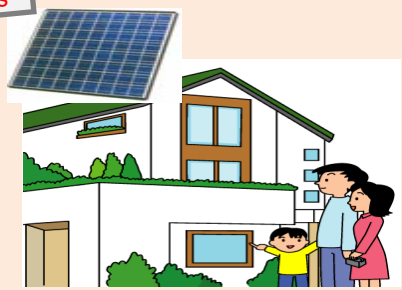
⇩

All of the generated power shall be purchased

Source: "Japan's Energy 2007" by the Agency for Natural Resources and Agency
"The 11th New Energy Award" by New Energy Foundation etc.

For residential use

Solar PV for residences



- Solar PV power generation for residences (below 10 kW)
- Those who generate power using approved facilities

⇩

Excess electricity shall be purchased

• It is not necessary to change the wiring at present. You can use it as it is.
•The more you save energy, the more you can sell electricity and can obtain more income from sale of electricity.

# Purchase price and purchase period

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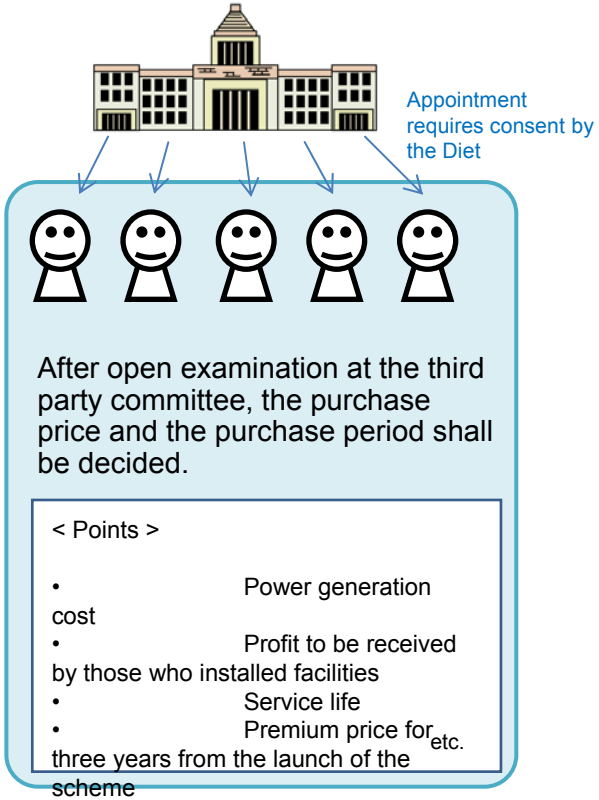
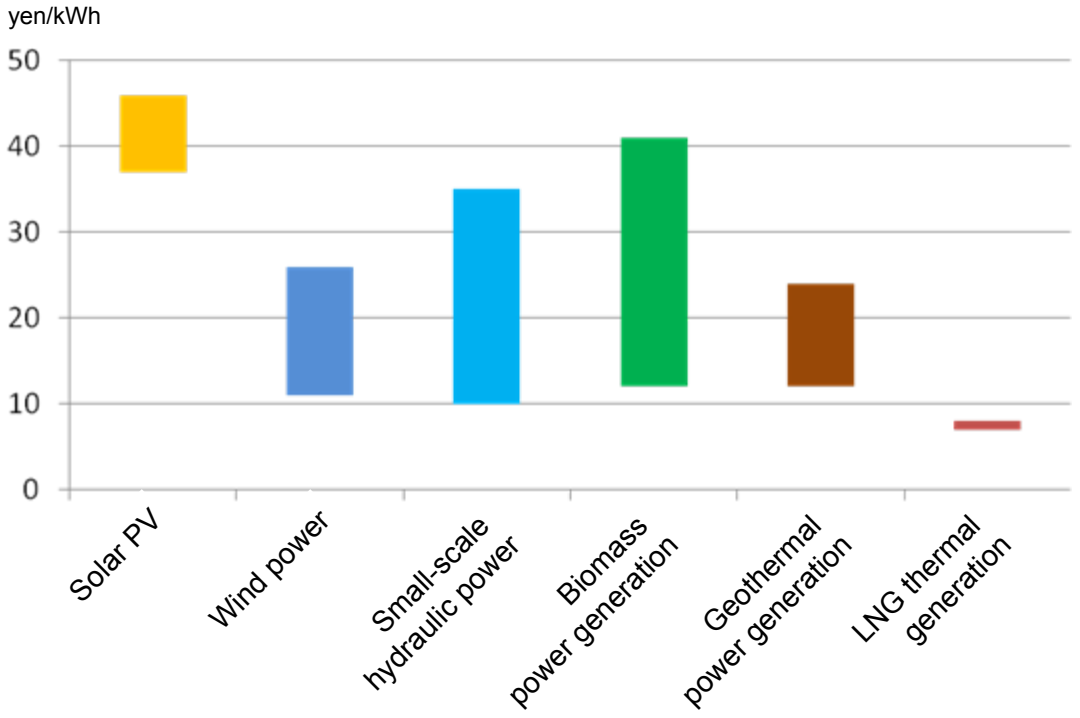
- Purchase rate and period shall be decided every year corresponding to the type, form of installation and scale of renewable energy sources.
- Specifically, the price and the period shall be decided based on the opinion from an independent committee (members shall be appointed after authorization by the Diet) after consultation with the ministers concerned (Minister of Agriculture, Forestry and Fisheries; Minister of Land, Infrastructure, Transport and Tourism; Minister of the Environment; and Minister of State for Consumer Affairs).




[Reference] Comparison example of current power generation costs




(Source)
Geothermal: Geothermal Generation Workshop (June 2009)
LNG: Subcommittee to Study Costs and Other Issues, Electricity Industry Committee (January, 2004)

# Collection and distribution of surcharge

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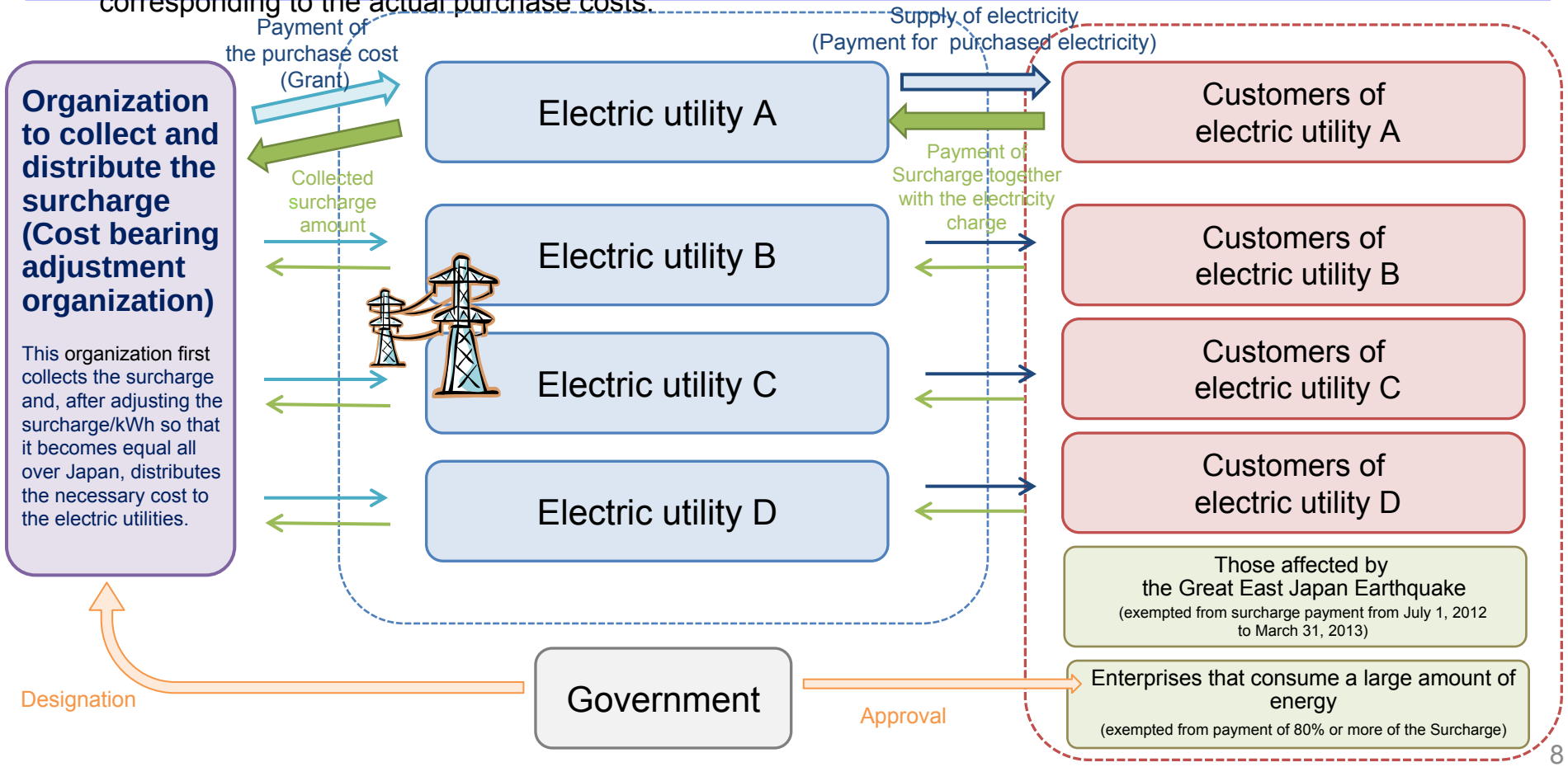
- The equal cost (surcharge/kWh) shall be borne all over Japan. The government shall decide the surcharge/kWh based on the results of the previous fiscal year. However, enterprises that consume an extremely large amount of energy (eight times or more the average unit of manufacturers in case of a manufacturer) and customers affected by the Great East Japan Earthquake shall be exempted from the surcharge.
- Since it is possible that the introduction speed of the renewable energy would vary depending on the region, an organization to adjust the burden will be established. The surcharge collected by electric utilities shall be first collected by the cost bearing adjustment organization and then delivered to the electric utilities as grants corresponding to the actual purchase costs.



# (Reference) Difference from the Excess Electricity Purchasing Scheme for Solar PV Power

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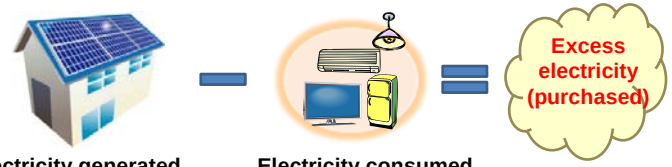
## Excess Electricity Purchasing Scheme for solar PV Power

### Excess electricity is purchased

<Image of excess electricity in case of a residence>




**Electricity generated with solar PV** — **Electricity consumed in the residence**

### Purchase rate and purchase period

Decided after invitation of opinions from the general public on the basis of discussion at the governmental council.

**Residences**

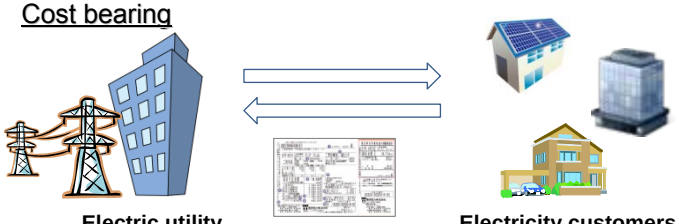
¥42/kWh
for ten years

**Non-residences**

¥40/kWh
for ten years

* Price is for FY 2011

### Cost bearing



**Electric utility** — **Electricity customers**

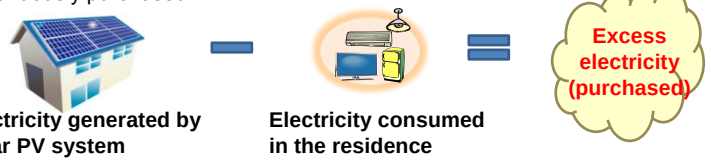
**Surcharge will be collected by each electric utility.**

## Feed-in Tariff Scheme for Renewable Energy

### Generated electricity is entirely purchased

**Electricity generated from renewable energy sources**

In case of electricity from solar PV system for residences, excess electricity will be continuously purchased.

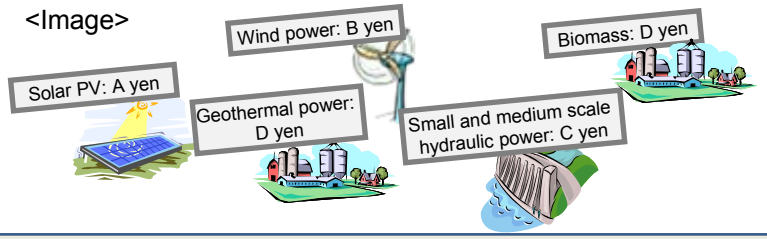



**Electricity generated by solar PV system** — **Electricity consumed in the residence**

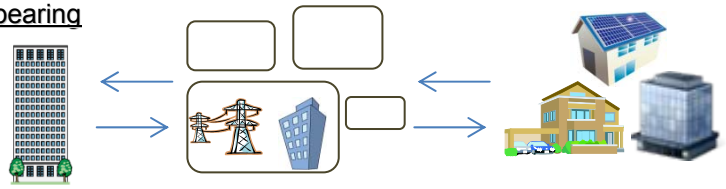
### Purchase rate and purchase period

After consultation with the ministers concerned, the purchase price and purchase period corresponding to energy source, form of installation and scale shall be decided based on the opinion from the third-party committee. The price and period shall be fixed after invitation of public comments.

<Image>




### Cost bearing



**Adjustment organization** — **Electric utility** — **Electricity customers**

**Adjustment to make the surcharge equal all over Japan**

# Household with a solar PV panel installed (example)

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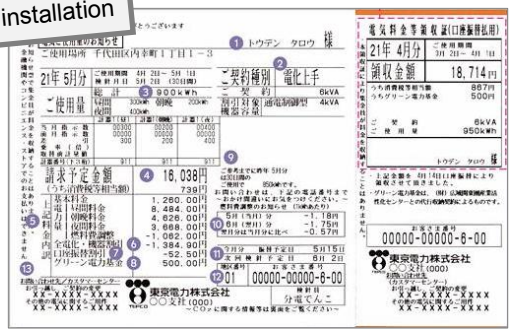
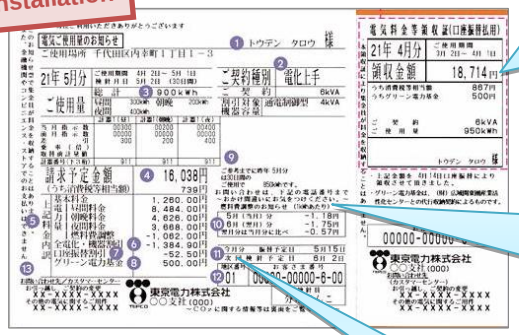
- In case of typical household with a 4-kw solar PV panel (that costs about ¥2 million at present) installed, the monthly electricity charge will be reduced from about ¥7,000 to ¥3,660 by using the electricity generated by the solar PV panel for the household.
- In addition, by selling the excess electricity generated by the panel, the household will be able to earn about ¥9,000.

Before installation



Electricity usage: 300 kWh
Electricity charge: 7,000 yen

After installation

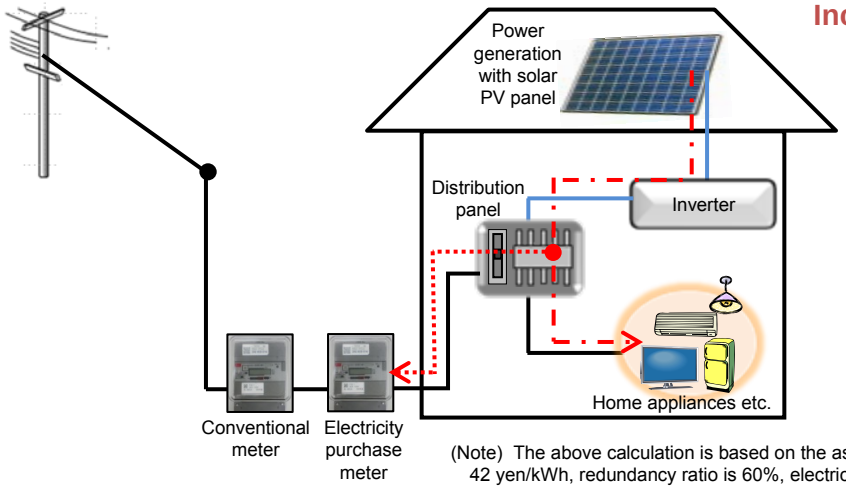


**Electricity usage: 157 kWh**
**Electricity charge: 3,660 yen (including surcharge of 80 yen)**
**Income obtained by selling electricity: 9,000 yen**

**Electricity usage and electricity charge will be reduced for the amount of electricity generated privately.**

**If more electricity than the power used in the house is generated, the excess can be sold under the feed-in tariff scheme.**

**All electricity customers shall bear the surcharge proportional to electricity usage whether or not they have solar panels installed at their houses.**



(Note) The above calculation is based on the assumption that the use ratio of solar PV power generation facilities is 12%, the price/kWh of the electricity sold is 42 yen/kWh, redundancy ratio is 60%, electricity usage per month is 3,000 kW and costs 7,000 yen, and the electricity usage of 300 kWh is kept unchanged in the house even after introduction of solar PV generation.
The surcharge/kWh used here is the price after the renewable energy becomes quite popular (0.5 yen/kWh).

# Handling of existing renewable energy power generation facilities

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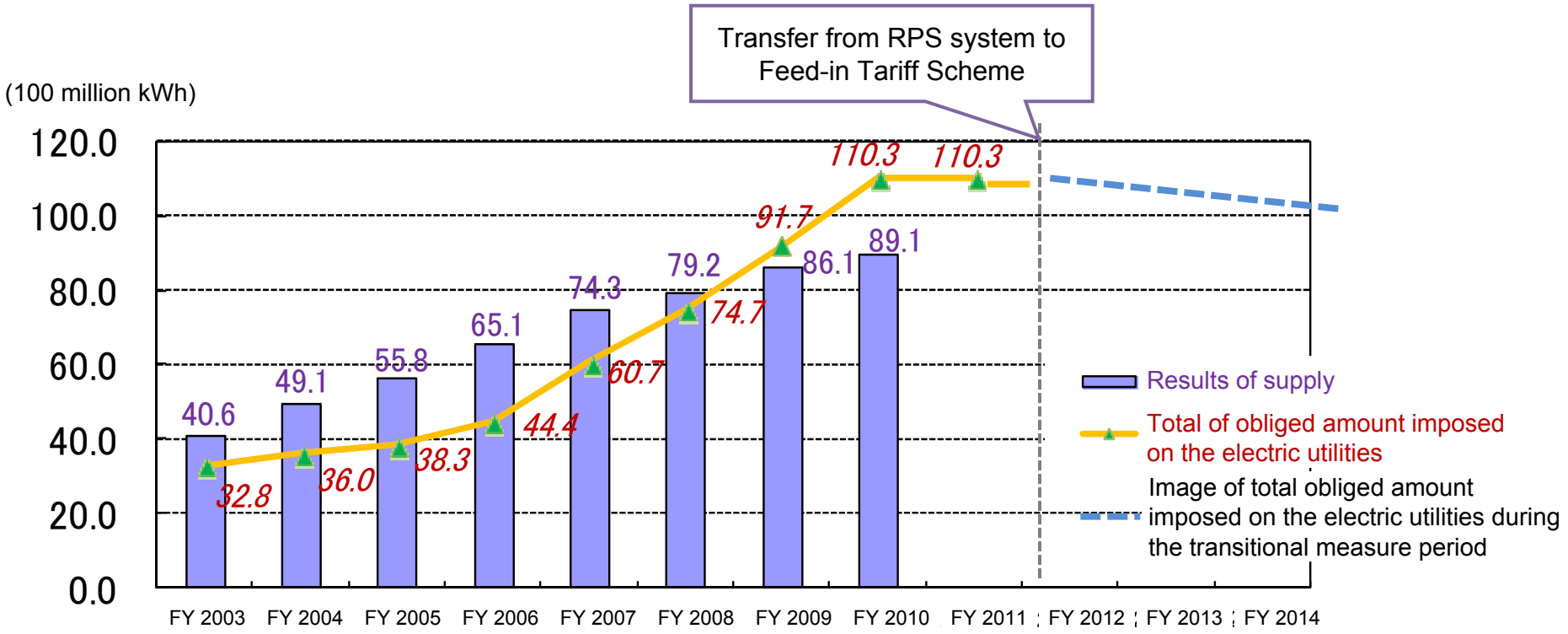
- Industrial power generation facilities using renewable energy sources are already subject to the Renewables Portfolio Standard (RPS) system introduced in 2003. This system obliges electric utilities to procure a certain amount of renewable energy and has largely contributed to increased use of renewable energy in Japan so far.
- New Feed-in Tariff Scheme is for the facilities newly installed. About 1,400 existing facilities for power generation can continue their operation under the same environment as before under the RPS Act.




* Total supply of electricity all over Japan in FY 2009 was 874,100 million kWh
(Electric Power Investigation Statistics, Agency for Natural Resources and Agency)

# Other important matters

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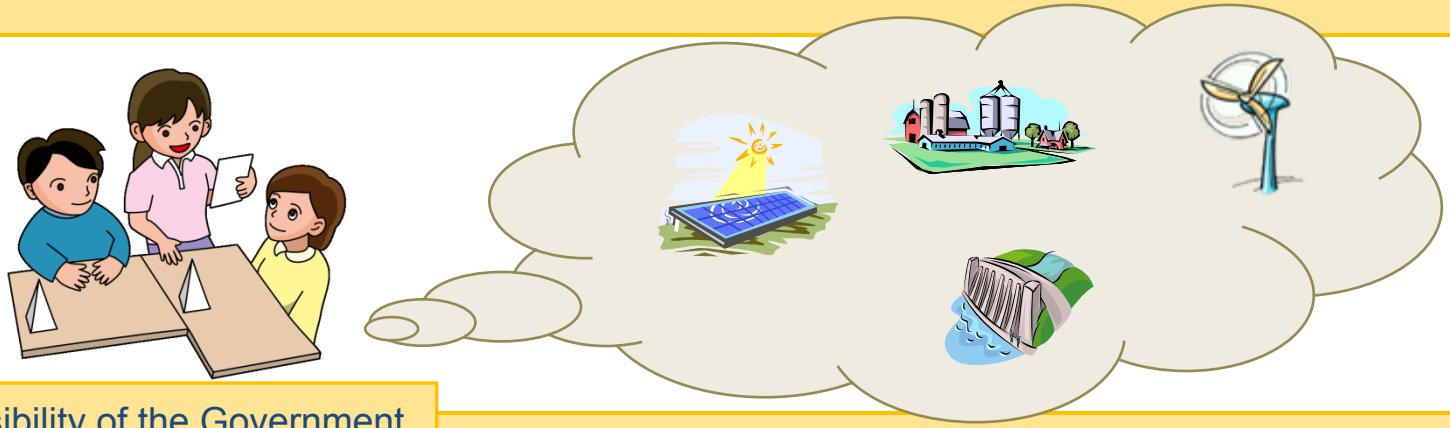
## Review of the Scheme

- The Act clearly specifies that the scheme should be actively reviewed corresponding to the actual situation.
  - The scheme shall be reviewed **at least every three years**. In addition, if **the Basic Energy Plan** is changed, the scheme shall be reviewed on the basis of the contents of the plan after change.
  - **The scheme shall be drastically reviewed by FY 2020.**



## Responsibility of the Government

- The government will further enhance PR activities. Further, it will use all possible measures including research and development promotion and review of various regulations in order to popularize renewable energy.

## Responsibilities of Electric Utilities and Renewable Energy Enterprises

- Electric utilities and renewable energy enterprises are required to make efforts in cost reduction.