Annex IX (Japan)

Public Offering for Peak Adjusting Power in Japan

KEPCO

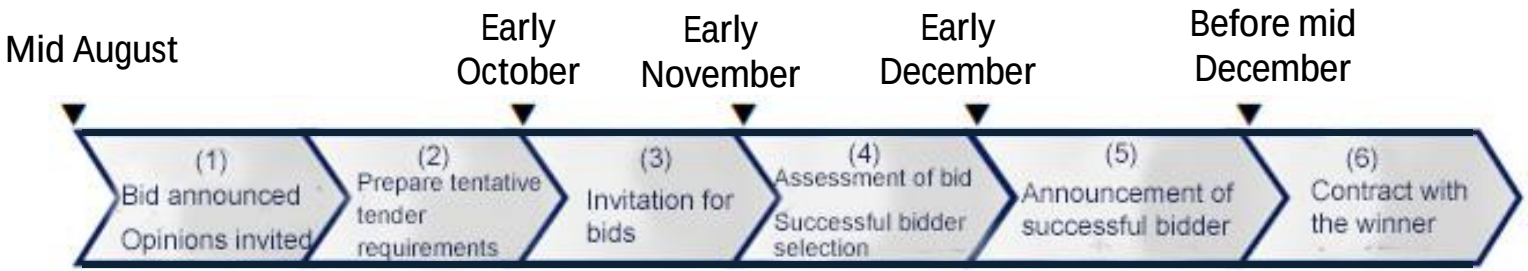
Takayuki Umezawa

Public Offering of Peak Adjustment Power(1/4)

- In April 2016, licensing system was implemented. This means each power-related business is required to carry out their responsibilities. As for frequency control and demand-supply balancing, Transmission / Distribution Sectors of General Power Utilities serving in their respective regions are responsible.

- Opinions are currently invited from Transmission / Distribution Sectors of General Power Utilities on the bidding method of Peak Adjustment Power that is necessary for frequency control and demand-supply balancing.

- The following is the schedule toward establishing the bidding system.



Public Offering of Peak Adjustment Power (2/4)

○One example of bid assessment method in public offering is as follows:

＜Bid assessment method＞

○Bidders who gain the highest scores on comprehensive evaluation will succeed

Comprehensive evaluation score
= max. 80 points of price elements + max. 20 points of non-price elements
(Details on the following slides)

＜Successful bidder selection＞

○The bidding capacities of bidders who are given highest scores by the above assessment are added up. When the sum of the bidding capacities reach the total capacity invited to public offering, the selection ends. The successful bidders are selected among the high score winners within that capacity.

○The contract price is the successful bidding price.

Public Offering of Peak Adjustment Power (3/4)

○Maximum 80 points from price elements evaluation

$$\text{Points of price elements} = 80 \text{ points} \times \frac{\text{Standard bidding price}}{\text{Bidding price}} \times r1 \times r2 \times r3$$

Standard bidding price: the lowest bidding price (yen/kW)

r1, r2, r3 : coefficients determined by the following numerical expressions

$$r1 = \frac{\text{Continuous operation time}}{\text{Maximum required continuous operation time (8 hours)}}$$

$$r2 = \frac{\text{365 - Number of planned non operation days per year}}{\text{365 - Maximum allowable number of days (50 days) of non operation per year}}$$

$$r3 = \frac{\text{Number of hours adjustment service can be provided}}{\text{24 hours}}$$

Public Offering of Peak Adjustment Power (4/4)

- Maximum 20 points from non-price elements evaluation

  +6 points (item 1): Necessary time for stopped unit to be ready is within 5 min.

  +6 points (item 2): AFC operation is possible for 24 hours

  +5 points (item 3): When the unit operation is stopped and restarted, necessary time for it to respond again to an output increase/decrease command is within 1 hour

  +1 point (item 4): Fast response to output command

  +1 point (item 5): AFC ratio in total power supply contract is greater than 34%

  +1 point (item 6): Able to black start

Example of Bid Assessment in Accordance with Tender Requirement

		X power station, unit X (VS-PSH)	Y power station, unit Y (CS-PSH)	Z power station, unit Z (CS-PSH)
Price elements	Bidding capacity	250MW	250MW	250,MW
	Bidding price	10000 yen/kW	10000 yen/kW	9000 yen/kW (Lowest bidding price)
	r1,r2,r3	Bidders are assumed to satisfy the tender requirements regarding continuous operation time, number of non operation days per year and adjustment service provision hours; therefore no deduction fro m above is needed		
	Sub total	80 points x (9000/10000) =72 points	80 points x (9000/10000) =72 points	80 points x (9000/9000) =80 points
Non price elements	Item 1	+6	+6	+6
	Item 2	+6	0	0
	Item 3	+5	+5	+5
	Item 4	+1	+1	+1
	Item 5	+1	+1	+1
	Item 6	+1	+1	+1
	Sub total	20	14	14
Total		92 points	86 points	94 points
Place		②	③	①
In case that the necessary total capacity is 500MW		○ successful bidder	× Not successful bidder	○ successful bidder

According to the currently suggested tender requirement, VS-PSH is evaluated with 6 more points than CS-PSH with the equal price elements score, as the above example shows.
[Reference note] According to the tender requirements in other areas, there would be no difference between the VS- and CS-PSH in the above examples (units X and Y).

Summary

○From evaluation results of ancillary services in Japan based on the current wheeling charge, it was confirmed that PSH, especially VS-PSH, has very high value for ancillary services and can effectively reduce the fuel cost for the ancillary services of thermal power plants.

○An example of bid assessment method in public offering shows one VS-PSH of a utility can be evaluated as more advantageous than CS-PSH.

Our Expectation of Annex IX

- We express our wish to have Annex 9 continue its activities in the next fiscal year and afterward.

- Since power sector reformation is under way in Japan, appropriate evaluation method of hydropower stations attracts much attention.

- From Japan side, we will continue to provide information on situations surrounding power sector reformation and evaluation methods of ancillary services currently under discussion.

- At the same time, we would like to ask for the latest approaches observed in the United States, France, Norway and other member countries toward evaluation of ancillary services on hydropower stations.

- It is our hope to propose appropriate evaluation methods of hydropower stations in the near future with the help of the aforementioned activities of Annex 9.

Public Offering of Peak Adjustment Power