



# Efforts to Ensure Quality from Feasibility Study, Planning, and Construction Viewpoint

30 August 2016



# Overview

# (1) FS, Planning and Construction Phase

- Part II of this Guideline describes FS, Planning and Construction Phase.
- The 1st section of this Part clarifies methodologies to evaluate the Quality of Electric Power Infrastructure (“QEPI” here on), which should be secured during FS, planning and construction phase.
- The 2nd section describes basics for the appropriate bidding procedure, since the contractor plays a pivotal role in this phase. Adequate procurement of construction is vital to secure the QEPI.



# Evaluation of the QEPI

# (1) Definition of Components of "QEPI"

<b>Components</b>	<b>Definition during FS, planning and construction phase</b>
1. Initial performance	<ul style="list-style-type: none"> <li>• Ability to commence operation as scheduled</li> </ul>
2. Supply stability	<ul style="list-style-type: none"> <li>• Ability to establish a foundation for stable operation as scheduled</li> </ul>
3. Ability to smoothly stop and recover	<ul style="list-style-type: none"> <li>• Ability to determine functions and equipment to reduce forced outage</li> </ul>
4. Environmental and social consideration	<ul style="list-style-type: none"> <li>• Ability to secure environmental and social consideration during construction phase</li> <li>• Ability to secure environmental and social consideration during operation phase</li> </ul>
5. Safety	<ul style="list-style-type: none"> <li>• Ability to secure safety during construction</li> <li>• Ability to secure safety during operation phase</li> </ul>
6. LCC	<ul style="list-style-type: none"> <li>• Ability to construct a plant considering the total cost including consideration for the risk of social cost throughout life cycle</li> </ul>

## (2) Performance Indicators for Ability an Employer Should Require to Applicants

- This Guideline provides examples of performance indicators to evaluate applicants' ability particularly from the perspective of an employer.
- Detailed metrics of the indicators are provided in Appendix 1.

# (3) Performance Indicator - Initial Performance

<b>Performance Indicator</b>	<b>Appendix 1</b>
Number of construction completion	No.1
Conformity with specified performance	No.2
Record of contract termination	No.3
Track record of faulty construction including delay in completion	No.4

# (4) Appendix 1: No.1 Number of Construction Completion

Component	Measurement unit	Scope of evaluation	Evaluation period
Initial performance	Number of constructions	Applicant	Most recent 10 years (Optional)
<b>Purpose of evaluation</b>			
<ul style="list-style-type: none"> <li>To confirm that the applicant has sufficient capability to construct a thermal power plant satisfying the required specification</li> </ul>			
<b>Evaluation method/Evaluation logic</b>			
<ul style="list-style-type: none"> <li>Request the applicant to submit a certificate of similar equipment indicating the performance value issued by a different operator and confirm the facts with the operator</li> </ul>			
<b>Measurement methodology (method to accumulate information of the indicator/component to be evaluated)</b>			
<ul style="list-style-type: none"> <li>Formula for construction completion Number of completed thermal power plant projects using similar equipment in which the applicant participated as an EPC contractor outside its domicile country/region</li> </ul>			
<b>Note</b>			
<ul style="list-style-type: none"> <li>Precise evaluation standards shall be determined by the employer based on the size and complexity of the project.</li> <li>It is necessary to create a place to share information with operators having track records.</li> </ul>			

# (5) Performance Indicator - Supply Stability

<b>Performance Indicator</b>	<b>Appendix 1</b>
Track record of faulty maintenance within the warranty period	No.5

# (6) Appendix 1: No.5 Track Record of Faulty Maintenance

## Within the Warranty Period

Component	Measurement unit	Scope of evaluation	Evaluation period
Supply stability	%	Applicant	Most recent 10 years (Optional)
<b>Purpose of evaluation</b>			
<ul style="list-style-type: none"><li>To confirm that the applicant has sufficient capability to fulfil the maintenance of the thermal plant delivered</li></ul>			
<b>Evaluation method/Evaluation logic</b>			
<ul style="list-style-type: none"><li>Request the applicant to submit a relevant track record and confirm the facts with the operator</li></ul>			
<b>Measurement methodology (method to accumulate information of the indicator/component to be evaluated)</b>			
<ul style="list-style-type: none"><li>Formula for track record of long term forced outages within the warranty period Number of similar thermal power plant projects in which the applicant participated as an EPC contractor outside its domicile country/region and which experienced long term forced outages due to factors excluding wars, civil wars, insurrection, disasters, etc. / Number of similar thermal power plant projects the applicant received as an EPC contractor outside its domicile country/region × 100</li></ul>			
<b>Note</b>			
<ul style="list-style-type: none"><li>Precise evaluation standards shall be determined by the employer based on the size and complexity of the project.</li><li>It is necessary to create a place to share information with operators having track records.</li></ul>			

# (6) Appendix 1: No.5 Track Record of Faulty Maintenance

## Within the Warranty Period

Component	Measurement unit	Scope of evaluation	Evaluation period
Supply stability	%	Applicant	Most recent 10 years (Optional)
<b>Purpose of evaluation</b>			
<ul style="list-style-type: none"> <li>To confirm that the applicant has sufficient capability to fulfil the maintenance of the thermal plant delivered</li> </ul>			
<b>Evaluation method/Evaluation logic</b>			
<ul style="list-style-type: none"> <li>Request the applicant to submit a relevant track record and confirm the facts with the operator</li> </ul>			
<b>Measurement methodology (method to accumulate information of the indicator/component to be evaluated)</b>			
<ul style="list-style-type: none"> <li>Formula for track record of lo  Number of similar thermal p  an EPC contractor outside its  forced outages due to factors  Number of similar thermal p  contractor outside its domicile country/region × 100</li> </ul> <div style="border: 2px solid blue; border-radius: 15px; padding: 10px; margin: 10px 0;"> <math display="block">\frac{\text{Number of projects that were faulty}}{\text{Number of total projects}} \times 100</math> <p style="text-align: right;">Smaller the percentage, the better</p> </div>			
<b>Note</b>			
<ul style="list-style-type: none"> <li>Precise evaluation standards shall be determined by the employer based on the size and complexity of the project.</li> <li>It is necessary to create a place to share information with operators having track records.</li> </ul>			

# (7) Performance Indicator - Ability to Smoothly Stop and Recover

<b>Performance Indicator</b>	<b>Appendix 1</b>
Track record of long term forced outage within the warranty period	No.6

# (8) Appendix 1: No.6 Track Record of Long Term Forced Outage Within the Warranty Period

Component	Measurement unit	Scope of evaluation	Evaluation period
Ability to smoothly stop and recover	%	Applicant	Most recent 10 years (Optional)
<b>Purpose of evaluation</b>			
<ul style="list-style-type: none"> <li>To confirm that the applicant has sufficient capability to construct a thermal power plant with no long-term forced outage</li> </ul>			
<b>Evaluation method/Evaluation logic</b>			
<ul style="list-style-type: none"> <li>Request the applicant to submit a relevant track record and confirm the facts with the operator</li> </ul>			
<b>Measurement methodology (method to accumulate information of the indicator/component to be evaluated)</b>			
<ul style="list-style-type: none"> <li>Formula for track record of long term forced outages within the warranty period            Number of similar thermal power plant projects in which the applicant participated as an EPC contractor outside its domicile country/region and which experienced long term forced outages due to factors excluding wars, civil wars, insurrection, disasters, etc. /            Number of similar thermal power plant projects the applicant received as an EPC contractor outside its domicile country/region × 100</li> </ul>			
<b>Note</b>			
<ul style="list-style-type: none"> <li>Precise evaluation standards shall be determined by the employer based on the size and complexity of the project.</li> <li>It is necessary to create a place to share information with operators having track records.</li> </ul>			

# (8) Appendix 1: No.6 Track Record of Long Term Forced Outage Within the Warranty Period

Component	Measurement unit	Scope of evaluation	Evaluation period
Ability to smoothly stop and recover	%	Applicant	Most recent 10 years (Optional)
<b>Purpose of evaluation</b>			
<ul style="list-style-type: none"> <li>To confirm that the applicant has sufficient capability to construct a thermal power plant with no long-term forced outage</li> </ul>			
<b>Evaluation method/Evaluation logic</b>			
<ul style="list-style-type: none"> <li>Request the applicant to submit a relevant track record and confirm the facts with the operator</li> </ul>			
<b>Measurement methodology (method to accumulate information of the indicator/component to be evaluated)</b>			
<ul style="list-style-type: none"> <li>Formula for track record of long term forced outage rate (%) = <math>\frac{\text{Number of similar thermal power plants with forced outages due to factors other than EPC contractor outside its domicile country/region}}{\text{Number of similar thermal power plants outside its domicile country/region}} \times 100</math></li> </ul>			
<div style="border: 2px solid blue; border-radius: 15px; padding: 10px; margin: 10px 0;"> <p style="margin: 0;">Number of projects that were faulty</p> <hr style="border: 0; border-top: 1px solid blue; margin: 5px 0;"/> <p style="margin: 0;">Number of total projects</p> <p style="margin: 0; text-align: right;">Smaller the percentage, the better</p> </div>			
<b>Note</b>			
<ul style="list-style-type: none"> <li>Precise evaluation standards shall be determined by the employer based on the size and complexity of the project.</li> <li>It is necessary to create a place to share information with operators having track records.</li> </ul>			

# (9) Performance Indicator - Environmental and Social Consideration

<b>Performance Indicator</b>	<b>Appendix 1</b>
Number of projects meeting the guarantee performance in relation to environmental performance (evaluated in “number of construction completion” under “Initial Performance”)	No.1
Conformity with specified performance (evaluated in “conformity with specified performance” under “Initial Performance”)	No.2
Track record in relation to non-conformance with the environment protection law	No.7
Track record in relation to employment from the economy	No.8

# (10) Appendix 1: No.7 Track Record in Relation to Non-Conformance with the Environment Protection Law

Component	Measurement unit	Scope of evaluation	Evaluation period
Environmental and social consideration	%	Applicant	Most recent 10 years (Optional)
<b>Purpose of evaluation</b>			
<ul style="list-style-type: none"> <li>To confirm that the applicant has sufficient capability to construct a thermal power plant while preserving the surrounding environment</li> </ul>			
<b>Evaluation method/Evaluation logic</b>			
<ul style="list-style-type: none"> <li>Request the applicant to submit a relevant track record and confirm the facts with the operator</li> </ul>			
<b>Measurement methodology (method to accumulate information of the indicator/component to be evaluated)</b>			
<ul style="list-style-type: none"> <li>Formula for track record in relation to non-conformance with the environment protection law            Number of similar thermal power plant projects in which the applicant participated as an EPC contractor outside its domicile country/region and which experienced non-conformance with the environment protection law / Number of similar thermal power plant projects the applicant received as an EPC contractor outside its domicile country/region × 100</li> </ul>			
<b>Note</b>			
<ul style="list-style-type: none"> <li>Precise evaluation standards shall be determined by the employer based on the size and complexity of the project.</li> <li>It is necessary to create a place to share information with operators having track records.</li> </ul>			

# (10) Appendix 1: No.7 Track Record in Relation to Non-Conformance with the Environment Protection Law

Component	Measurement unit	Scope of evaluation	Evaluation period
Environmental and social consideration	%	Applicant	Most recent 10 years (Optional)
<b>Purpose of evaluation</b>			
<ul style="list-style-type: none"> <li>To confirm that the applicant has sufficient capability to construct a thermal power plant while preserving the surrounding environment</li> </ul>			
<b>Evaluation method/Evaluation logic</b>			
<ul style="list-style-type: none"> <li>Request the applicant to submit a relevant track record and confirm the facts with the operator</li> </ul>			
<b>Measurement methodology (method to accumulate information of the indicator/component to be evaluated)</b>			
<ul style="list-style-type: none"> <li>Formula for track record in relation to non-conformance with the environment protection law  <math display="block">\frac{\text{Number of similar projects that the applicant participated as an EPC contractor and experienced non-conformance with the environment protection law}}{\text{Number of thermal power plant projects that the applicant participated as an EPC contractor in its domicile country/region}} \times 100</math> </li> </ul>			
<div style="border: 2px solid blue; border-radius: 15px; padding: 10px; margin: 10px 0;"> <p style="font-size: 1.2em; margin: 0;">Number of projects that were faulty</p> <hr style="border: 0.5px solid blue; margin: 5px 0;"/> <p style="font-size: 1.2em; margin: 0;">Number of total projects</p> <p style="font-size: 1.2em; margin: 0;">Smaller the percentage, the better</p> </div>			
<b>Note</b>			
<ul style="list-style-type: none"> <li>Precise evaluation standards shall be determined by the employer based on the size and complexity of the project.</li> <li>It is necessary to create a place to share information with operators having track records.</li> </ul>			

# (11) Performance Indicator - Safety

Performance Indicator	Appendix 1
Number of projects satisfying the guarantee performance in relation to safety (evaluated in “number of construction completion” under “Initial Performance”)	No.1
Ability to meet required safety performance (evaluated in “conformity with specified performance” under “Initial Performance”)	No.2
Track record of fatal accidents	No.9

# (12) Appendix 1: No.9 Track Record of Fatal Accidents

Component	Measurement unit	Scope of evaluation	Evaluation period
Safety	%	Applicant	Most recent 10 years (Optional)
<b>Purpose of evaluation</b>			
<ul style="list-style-type: none"> <li>To confirm that the applicant has sufficient capability to construct a thermal power plant while securing the labour safety and the safety of the construction site and surrounding citizens</li> </ul>			
<b>Evaluation method/Evaluation logic</b>			
<ul style="list-style-type: none"> <li>Request the applicant to submit a relevant track record and confirm the facts with the operator</li> </ul>			
<b>Measurement methodology (method to accumulate information of the indicator/component to be evaluated)</b>			
<ul style="list-style-type: none"> <li>Formula for track record of fatal accidents            Number of similar thermal power plant projects in which the applicant participated as an EPC contractor outside its domicile country/region and which experienced fatal accidents attributable to construction work outside the applicant's domicile country/region / Number of similar thermal power plant projects the applicant received as an EPC contractor outside its domicile country/region × 100</li> </ul>			
<b>Note</b>			
<ul style="list-style-type: none"> <li>Precise evaluation standards shall be determined by the employer based on the size and complexity of the project.</li> <li>It is necessary to create a place to share information with operators having track records.</li> </ul>			

# (12) Appendix 1: No.9 Track Record of Fatal Accidents

Component	Measurement unit	Scope of evaluation	Evaluation period
Safety	%	Applicant	Most recent 10 years (Optional)
<b>Purpose of evaluation</b>			
<ul style="list-style-type: none"> <li>To confirm that the applicant has sufficient capability to construct a thermal power plant while securing the labour safety and the safety of the construction site and surrounding citizens</li> </ul>			
<b>Evaluation method/Evaluation logic</b>			
<ul style="list-style-type: none"> <li>Request the applicant to submit a relevant track record and confirm the facts with the operator</li> </ul>			
<b>Measurement methodology (method to accumulate information of the indicator/component to be evaluated)</b>			
<ul style="list-style-type: none"> <li>Formula for track record of fatal accidents attributable to construction as an EPC contractor outside its domestic country/region / Number of similar projects as an EPC contractor outside its domestic country/region × 100</li> </ul> <div style="border: 2px solid blue; border-radius: 15px; padding: 10px; margin: 10px 0;"> <math display="block">\frac{\text{Number of projects that were faulty}}{\text{Number of total projects}} \times 100</math> <p style="text-align: right; margin-right: 20px;">Smaller the percentage, the better</p> </div>			
<b>Note</b>			
<ul style="list-style-type: none"> <li>Precise evaluation standards shall be determined by the employer based on the size and complexity of the project.</li> <li>It is necessary to create a place to share information with operators having track records.</li> </ul>			

# (13) Performance Indicator - LCC

<b>Performance Indicator</b>	<b>Appendix 1</b>
LCC considering all other 5 components	No.10

# (14) Appendix 1: No.10 LCC Considering All Other 5

## Components

Component	Measurement unit	Scope of evaluation	Evaluation period
LCC	(\$ or local currency) / kWh	Applicant	30 years after construction (Optional)

### **Purpose of evaluation**

- Evaluate the LCC of the power equipment that will be realized through the applicant, and evaluate whether if the LCC falls below pre-determined value

### **Evaluation method/Evaluation logic**

- Request the applicant to submit the LCC amount and the calculation procedures based on various assumptions made by the employer

### **Measurement methodology (method to accumulate information of the indicator/component to be evaluated)**

- LCC considering all five other components = (Total power generation cost + Social cost) / Total power generation (details provided in the note below)

The definition of each item in the above formula is as follows:

Total power generation cost: Construction cost (CC), fuel cost (FC), O&M cost and disposal cost (DC).

Social cost (SC): External cost such as CO2 emission cost is evaluated quantitatively

Total power generation (TPG): Maximum Generating-End Output

### **Note**

- LCC considering all five other components is as follows:

$$\Sigma(CC, FC, O\&M \text{ cost}, ST, DC) / \Sigma TPG$$

# (14) Appendix 1: No.10 LCC Considering All Other 5

## Components

Component	Measurement unit	Scope of evaluation	Evaluation period
LCC	(\$ or local currency) / kWh	Applicant	30 years after construction (Optional)
<b>Purpose of evaluation</b>			
<ul style="list-style-type: none"> <li>Evaluate the LCC of the power equipment that will be realized through the applicant, and evaluate whether if the LCC falls below pre-determined value</li> </ul>			
<b>Evaluation method/Evaluation logic</b>			
<ul style="list-style-type: none"> <li>Request the applicant to submit the LCC amount and the calculation procedures based on various assumptions made by the employer</li> </ul>			
<b>Measurement methodology (method to accumulate information of the indicator/component to be evaluated)</b>			
<ul style="list-style-type: none"> <li>LCC considering all five other components = (Total power generation cost + Social cost) / Total power generation (det)</li> </ul> <p>The definition of each item in the formula is as follows:</p> <p>Total power generation cost: CC (Capital cost), FC (Fuel cost), O&amp;M cost (Operation and Maintenance cost), ST (Start-up cost), DC (Decommissioning cost) (DC).</p> <p>Social cost (SC): External cost such as CO2 emission cost is evaluated quantitatively</p> <p>Total power generation (TPG): Maximum Generating-End Output</p>			
<b>Note</b>			
<ul style="list-style-type: none"> <li>LCC considering all five other components is as follows:  <math display="block">\frac{\Sigma(CC, FC, O\&amp;M \text{ cost}, ST, DC) + SC}{\Sigma TPG}</math> </li> </ul>			

Total cost

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Total power generation

Smaller the amount, the better

# (15) Performance Indicator - Financial Capability

<b>Performance Indicator</b>	<b>Appendix 1</b>
Turnover	No.11
Liquid asset	No.12
Soundness	No.13

# (16) Appendix 1: No.11 Turnover

Component	Measurement unit	Scope of evaluation	Evaluation period
Financial capability	\$ or local currency	Applicant	Most recent 5 years (Optional)
<b>Purpose of evaluation</b>			
<ul style="list-style-type: none"> <li>To confirm that the applicant has sufficient financial capability to fulfil the contract of thermal power plant construction</li> </ul>			
<b>Evaluation method/Evaluation logic</b>			
<ul style="list-style-type: none"> <li>Request the applicant to submit audited income statement or if not required by the law of the applicant's country, other financial statements acceptable to the employer for the last 5 years</li> </ul>			
<b>Measurement methodology (method to accumulate information of the indicator/component to be evaluated)</b>			
<ul style="list-style-type: none"> <li>Formula for turnover The average annual turnover (indicated in the income statement) for the past 5 years</li> </ul>			
<b>Note</b>			
<ul style="list-style-type: none"> <li>Precise evaluation standards shall be determined by the employer based on the size and complexity of the project.</li> </ul>			

# (16) Appendix 1: No.11 Turnover

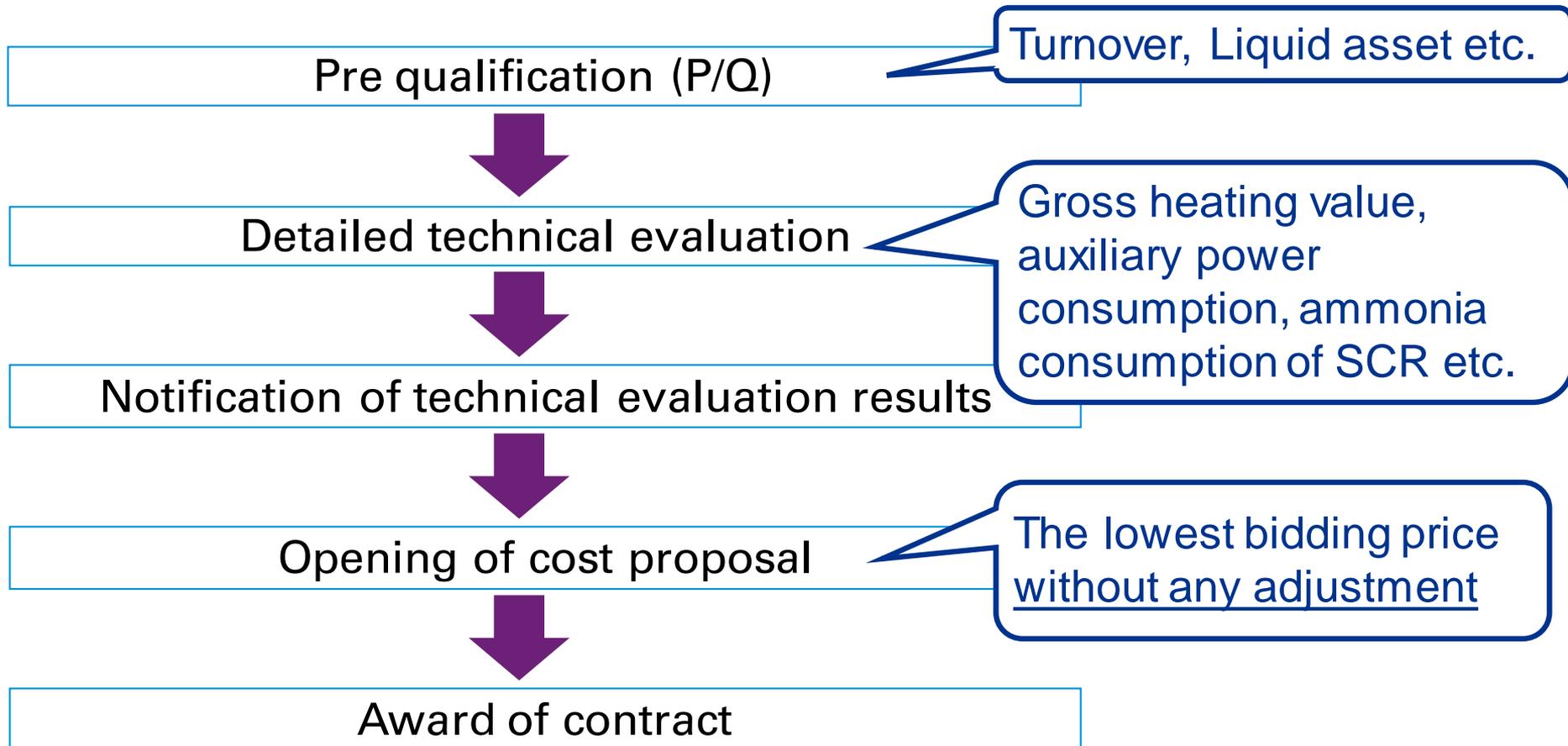
Component	Measurement unit	Scope of evaluation	Evaluation period
Financial capability	\$ or local currency	Applicant	Most recent 5 years (Optional)
<b>Purpose of evaluation</b>			
<ul style="list-style-type: none"> <li>To confirm that the applicant has sufficient financial capability to fulfil the contract of thermal power plant construction</li> </ul>			
<b>Evaluation method/Evaluation logic</b>			
<ul style="list-style-type: none"> <li>Request the applicant to submit audited income statement or if not required by the law of the applicant's country, other financial statements acceptable to the employer for the last 5 years</li> </ul>			
<b>Measurement methodology (method to accumulate information of the indicator/component to be evaluated)</b>			
<ul style="list-style-type: none"> <li>Formula for turnover The average annual turnover (indicated in the income statement) for the past 5 years</li> </ul>			
<div style="border: 1px solid blue; border-radius: 15px; padding: 5px; display: inline-block;">             The average of total turnover for the past 5 years              =the larger the figure, the better           </div>			
<b>Note</b>			
<ul style="list-style-type: none"> <li>Precise evaluation standards shall be determined by the employer based on the size and complexity of the project.</li> </ul>			



# Requirements of Bidding to Secure the QEPI

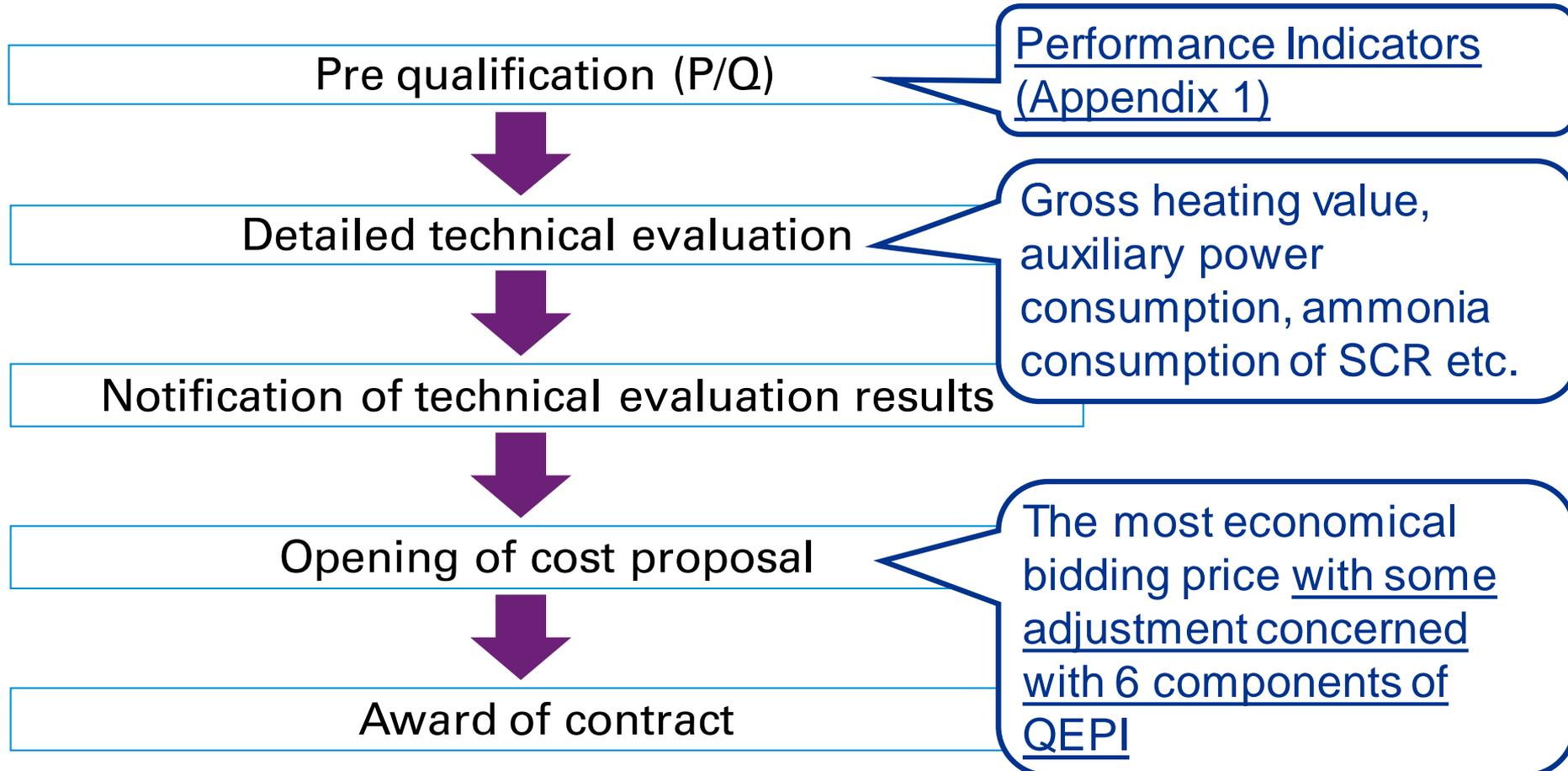
# (1-1) Bidding Procedure for Construction of Electric Power Infrastructure (As Is)

## General bidding procedure for a thermal power plant



# (1-2) Bidding Procedure for Construction of Electric Power Infrastructure (Should Be)

## **Bidding procedure for a thermal power plant (Example)**



## (2) Requirements of Bidding Procedure for the Construction of Electric Power Infrastructure

- An employer prepares P/Q and bidding specifications which specify criteria of the QEPI a thermal power plant should satisfy, and selects applicants with sufficient ability to achieve the requirements.
- Examples of the evaluation criteria for P/Q and bidding specification which a thermal power plant should secure are provided in Appendix 2 and Appendix 3 respectively.

# (3) Appendix 2: Examples of Evaluation Criteria for P/Q

No.	Evaluation criteria	Subject
1.	Eligibility	1.1 Conflict of interest 1.2 Ineligibility
2.	Historical contract non-performance	2.1 History of non-performing contracts 2.2 Pending litigation
3.	Financial situation	3.1 Financial performance 3.2 Average turnover
4.	Applicant's qualification	4A. Experience 4.1 General construction experience 4.2 Specific construction experience 4.3 Specific operating experience, etc.
		4B. Equipment capabilities 4.11 Operating experience of reference gas turbines 4.12 Similarity of proposed gas turbine 4.13 Heat Recovery Steam Generator (HRSG), etc.



# (4) Appendix 3: Examples of Qualification Criteria in Bidding Specification

<b>No.</b>	<b>Requirement</b>
1.	Update of information
2.	Financial resources
3.	Personnel
4.	Equipment
5.	Subcontractors/manufacturers
6.	Additional experiences certificates



# Best Practice

# (1) Columns

This Guideline has 14 columns to provide examples of Best Practice for securing the “QEPI”:

No.	Title
1.	Example of ECI - ESK River Hydropower Project in New Zealand
2.	ASEAN Clean Coal Technology Handbook
3.	Safety and health regulations for workers at power plants in the United States
4.	Cyber security measures to protect power infrastructure in the United States
5.	The trend of standardization in the field of control systems
6.	Mechanism of information exchange among utility companies in ASEAN
7.	P/Q standards regarding initial performance of thermal power plant in Malaysia
8.	Measures to improve the supply stability of thermal power plants in India
9.	Efforts to ensure workplace safety in Indonesia
10.	Example of calculating LCC of power plants by international agencies
11.	Bidding in comprehensive successful bid system for transmission line construction in Canada
12.	The measurement of increase of heat rate in Japan
13.	The measurement of actual FOR in Japan
14.	Training employees in thermal power plants in Thailand

## (2) Column 11: Bidding in Comprehensive Successful Bid System for Transmission Line Construction in Canada

- Ontario Energy Board, located in Ontario, Canada, has adopted the comprehensive bid system with regard to the “East-West Tie line construction project”.
- Criteria of 9 categories were set forth by the board.
- Applicants are ranked on a relative basis according to the 9 categories and scored according to their ranking.

## (3) Overview of "East-West Tie line construction project"

This project consist of a new, approximately 278-mile (447-km), double-circuit, 230-kilovolt (kV) transmission line that connects the Wawa Transformer Station to the Lakehead Transformer Station



(Reference: NextBridge Infrastructure LP. Maps, <http://www.nextbridge.ca/maps.html>)

## (4) Criteria of 9 categories

Category	Detail
1. Organization	<ul style="list-style-type: none"> <li>Project organizational plan, etc.</li> </ul>
2. First nations and Métis participation	<ul style="list-style-type: none"> <li>Approach to first nations and Métis participation in the project</li> </ul>
3. Technical capability	<ul style="list-style-type: none"> <li>Capability to plan, engineer, construct, operate and maintain</li> </ul>
4. Financial capability	<ul style="list-style-type: none"> <li>Financial capability necessary to develop, construct, operate and maintain</li> </ul>
5. Proposed design	<ul style="list-style-type: none"> <li>Feasibility</li> </ul>
6. Schedule (development and construction phases)	<ul style="list-style-type: none"> <li>Overall project execution chart showing major milestones for both the development and construction phases of the project, etc.</li> </ul>
7. Cost (development, construction and maintenance phases)	<ul style="list-style-type: none"> <li>Estimated costs for the development, construction, and operation phases of the project</li> </ul>
8. Landowner/community/municipal consultation	<ul style="list-style-type: none"> <li>Ability to conduct successful consultations with landowners, municipalities and local communities, etc.</li> </ul>
9. First nations and Métis consultation	<ul style="list-style-type: none"> <li>Ability to conduct successful First nation and Métis consultations and to provide a consultation, etc.</li> </ul>

(Reference: Ontario Energy Board. (2013). East-West Tie Line Designation Phase 2 Decision and Order. Canada.)

# (5) Evaluation results - Score Board

Category	Applicant	UCT	AltaLink	EWT LP	RES	CNPI	Iccon / TPT
1. Organization		6	5	4	3	2	1
2. First nations and Métis participation		2.5	6	4.5	2.5	4.5	1
3. Technical capability		6	5	4	1	2	3
4. Financial capability		3.5	3.5	3.5	3.5	3.5	3.5
5. Proposed design		5.5	3	4	5.5	1	2
6. Schedule		6	3	5	1	2	4
7. Cost		5.5	5.5	3	4	2	1
8. Landowner, community, municipal consultation		4.5	3	6	4.5	2	1
9. First nations and Métis consultation		6	4.5	4.5	3	1	2
Total		45.5	38.5	38.5	28.0	20.0	18.5
	<b>Total score</b>	<b>455</b>	<b>385</b>	<b>385</b>	<b>280</b>	<b>200</b>	<b>185</b>

(Reference: Ontario Energy Board. (2013). East-West Tie Line Designation Phase 2 Decision and Order. Canada.)

Note: If two or more applicants were judged to rank equally in a certain criterion, they were given the same ranking with a corresponding average score (e.g. if two applicants were ranked at 5, they were each given a score of 4.5).