

## (四)、附錄 **Appendix**

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## Appendix 1: Metrics of performance during feasibility study, planning and construction phase

No.	1	Performance indicator	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>To confirm that the applicant has sufficient capability to construct a thermal power plant satisfying the required specification</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 (*1) using similar equipment (*2) in which the applicant participated as an EPC contractor outside its domicile country/region</li> </ul> <p>*1: Definition of completed thermal power plant projects</p> <p>(1) Boiler/steam turbine plant For equipment with a steam temperature below 593 degrees C: Operation record of more than xx years outside the domicile country/region For equipment with a steam temperature above 593 degrees C: Operation record of more than xx years outside the domicile country/region</p> <p>(2) Gas turbine, combined cycle plant: Operation record in relation to a gas turbine of the similar class (above the class of the planned equipment)</p> <p>(3) Environmental equipment: Operation record of more than xx years outside the domicile country/region</p> <p>*2: Definition of similar equipment</p> <p>(1) Boiler/steam turbine plant: Output (greater than the planned equipment), steam temperature/pressure (greater than the planned equipment)</p> <p>(2) Gas turbine, combined cycle plant: Similar class</p> <p>(3) Environmental equipment (NO<sub>x</sub>, SO<sub>x</sub>, PMs): Efficiency of environmental equipment = Value at an inlet of the equipment - Value at an outlet of the equipment) + (Value at an inlet of the equipment × 100) (greater than the planned equipment)</p>				
<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>				

No.	2	Performance indicator	Conformity with specified performance	
Component	Measurement unit	Scope of evaluation	Evaluation period	
Initial performance	%	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</li> </ul>				

satisfying the required specification
<b>Evaluation method/Evaluation logic</b>
<ul style="list-style-type: none"> <li>Request the applicant to submit a guarantee sheet 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 conformity with specified performance  Number of similar thermal power plant projects in which the applicant participated as an EPC contractor outside its domicile country/region and that satisfied all performance requirements (*1) / Number of similar thermal power plant projects the applicant received as an EPC contractor (*2) outside its domicile country/region × 100</li> </ul> <p>*1: Definition of projects that satisfied all performance requirements  Projects which satisfied all the requirements indicated in the guarantee sheet outside its domicile country/region</p>
<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>

<b>No.</b>	<b>3</b>	<b>Performance indicator</b>	<b>Record of contract termination</b>	
<b>Component</b>	<b>Measurement unit</b>	<b>Scope of evaluation</b>	<b>Evaluation period</b>	
Initial performance	%	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 technical capability to fulfil the contract</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 terminated contracts  Number of similar thermal power plant projects in which the applicant participated as an EPC contractor outside its domicile country/region and which were terminated due to the applicant's fault (*1) / Number of similar thermal power plant projects the applicant received as an EPC contractor outside its domicile country/region × 100</li> </ul> <p>*1: Definition of projects which were terminated due to the applicant's fault  Projects in which the applicant substantially made monetary payment to the employer (e.g. liquidation damage)</p>				
<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>				

<b>No.</b>	<b>4</b>	<b>Performance indicator</b>	<b>Track record of faulty constructions including delay in completion</b>	
<b>Component</b>	<b>Measurement unit</b>	<b>Scope of evaluation</b>	<b>Evaluation period</b>	
Initial performance	%	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 technical capability to fulfil the contract</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 faulty construction including delay in completion  Number of similar thermal power plant projects in which the applicant participated as an EPC contractor outside its domicile country/region and which were deemed faulty due to the applicant's fault (*1) / Number of similar thermal power plant projects the applicant received as an EPC contractor outside its domicile country/region × 100</li> </ul> <p>*1: Definition of projects deemed faulty due to the applicant's fault  Projects in which the applicant substantially made monetary payment to the employer (e.g. liquidation damage attributable to non-conformance with the required performance, liquidation damage for delay in construction)</p>			
<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>			

No.	5	Performance indicator	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 faulty maintenance 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 of which the maintenance was deemed faulty due to the applicant's fault (*1) / Number of similar thermal power plant projects the applicant received as an EPC contractor outside its domicile country/region × 100</li> </ul> <p>*1: Definition of maintenance deemed faulty due to the applicant's fault  Projects in which the applicant substantially made monetary payment to the employer within the warranty period (e.g. forfeiture of retention, liquidation damage attributable to non-conformance with the required performance)</p>				
<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>				

No.	6	Performance indicator	Track record of long term forced outages 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. (*1) / Number of similar thermal power plant projects the applicant received as an EPC contractor outside its domicile country/region × 100</li> </ul> <p>*1: Definition of projects which experienced long term forced outages  Projects which experienced Forced Outage Hours (FOH) equal to 30 consecutive days or longer (the same definition as provided in <i>IEEE Std 762TM-2006</i>).</p>				
<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>				

No.	7	Performance indicator	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 (*1) / Number of similar thermal power plant projects the applicant received as an EPC contractor outside its domicile country/region × 100</li> </ul> <p>*1: Definition of projects which experienced non-conformance with the environment protection law  Projects in which the applicant or the applicant's board of directors received public</p>				

prosecution or administrative disposition relating to the local environment protection law
<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>

No.	8	Performance indicator	Track record in relation to employment from the economy	
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 returning value to the local economy through creation of employment</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 employment from the economy            Number of similar thermal power plant projects in which the applicant participated as an EPC contractor outside its domicile country/region with the rate of employment from the local economy (within the construction site during the contract period) (*1) of xx % or more / Number of similar thermal power plant projects the applicant received as an EPC contractor outside the applicant's domicile country/region × 100</li> </ul> <p>*1: Definition of the rate of employment within the construction site during the contract period            Total working hours of employees possessing the project country's nationality at the construction site during the contract period / Total working hours of employees at the construction site during the contract period × 100</p>				
<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>				

No.	9	Performance indicator	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</li> </ul>				

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 (\*1) 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

\*1: Definition of fatal accidents attributable to construction work

Accidents which involved one or more deaths and were caused by workers of the construction work (whether caused by the applicant, sub-contractor, or vendor etc., and within or outside the construction site)

**Note**

- Precise evaluation standards shall be determined by the employer based on the size and complexity of the project.
- It is necessary to create a place to share information with operators having track records.

No.	10	Performance indicator	LCC considering all other five 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 (details provided in the note below)</li> </ul> <p>The definition of each item in the above formula is as follows:            Total power generation cost: Construction cost (CC), fuel cost (FC), O&amp;M cost and disposal cost (DC).            Social cost (SC): External cost such as CO<sub>2</sub> emission cost is evaluated quantitatively            Total power generation (TPG): Maximum Generating-End Output</p>				
<b>Note</b>				

- It is necessary to create a place to share information with operators having track records.
- The disposal cost of the power equipment is to be assumed (for example) as a constant rate of construction cost as disposal cost is significantly immaterial in comparison to other costs
- Applicant sets up and shall guarantee the values at the construction completion regarding construction cost, rated output and heat rate
- Employer sets up the values of each of the applicants regarding availability, increase of heat rate per year and Forced Outage Hours per year according to the applicant's actual results, to the extent possible
- Employer will calculate the value of LCC considering all five other components based on values set by the employer and the applicant
- LCC considering all five other components shall be evaluated on the whole period from construction to disposal
- Precise evaluation standards shall be determined by the employer based on the size and complexity of the project.

LCC considering all five other components is as follows:

$$(1) \frac{\sum (CC, FC, O \& M \text{ cost}, SC, DC)}{(2) \sum TPG}$$

\*The future cost and the future portion will be discounted to the present value.

Explanation of each item

[(1)]

$$\sum_y \left( CC + FC(a) + O \& M \text{ cost}(b) + SC(c)^{1,2} + DC \right) \times (1+r)^{-y}$$

(a). FC in y year

Fuel consumption Fuel (y) (MJ) × Fuel unit price (\$/MJ)

(b). O&M cost in y years

O&M cost: (Example: Power generation in y years (MWh) × O&M cost per power generation (\$/MWh))

(c). SC in y years

Example : Fuel consumption Fuel (y) (MJ) × CO<sub>2</sub> emission cost (\$/MJ)

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

Fuel consumption Fuel (y) (MJ) =

$$P(\text{MW}) \times (8760(\text{h/year}) \times A(\%) - \text{FOH}(\text{h/year})) \times (\epsilon(\text{MJ/MWh}) + n(\text{MJ/MWh} \square \text{year}) \times y)$$

P: Applicant sets up and shall guarantee Rated output of the power equipment (MW) on construction completion

A: Employer sets up the value of availability (%) of the power equipment of each applicants based on past actual results, to the extent possible

r: Discount rate (determined based on the interest rate on the economy's government bond and other risk factors such as currencies)

FOH: Employer sets up FOH per year (h/year)<sup>13</sup> of power equipment of each applicants based on past actual results to the extent possible

ε: Applicant sets up and shall guarantee the value of heat rate of the power equipment on the day of completion (MJ/MWh)

n: Employer sets up the value about increase of heat rate per year (MJ/MWh) of the power equipment of each applicant based on past actual results to the extent possible

y: Year

\*<sup>1</sup> Social cost should be derived based on the appropriate unit cost and coefficient. An



example of the CO<sub>2</sub> emission cost calculation is as follows

(1) CO<sub>2</sub> emission unit cost: US \$8.3/t - CO<sub>2</sub> (EU-ETS ICE 31/12/2015 ending price)  
(2) CO<sub>2</sub> emission coefficient: 94.6t - CO<sub>2</sub> /TJ-coal (2006 IPCC Guidelines for National Greenhouse Gas Inventories)

\*<sup>2</sup> It is desirable to include NO<sub>x</sub> emission cost, SO<sub>x</sub> emission cost, PM, emission cost, water disposal cost and external cost that is caused by the forced outages into social cost to the extent possible

\*<sup>3</sup> Same definition as IEEE Std 762TM-2006

[(2)]

- Power generation in y year

$$TPG = P \text{ (kW)} \times (8760 \text{ (h/year)} \times A(\%) - FOH \text{ (h/year)}) \times (1+r)^{-y}$$

No.	11	Performance indicator	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</li> <li>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>				

No.	12	Performance indicator	Liquid asset	
Component	Measurement unit	Scope of evaluation	Evaluation period	
Financial capability	\$ or local currency	Applicant	Most recent year	
<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 the evidence that applicant has rights to liquid asset</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 liquid asset</li> <li>The amount of liquid asset (*1) that is demonstrated by the applicant</li> </ul>				
<p>*1: Definition of liquid asset</p> <p>Current assets which are highly convertible to cash (e.g. cash and cash equivalents, accounts receivable, notes receivable, securities held for trading purposes)</p>				
<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>				

No.	13	Performance indicator	Soundness	
Component	Measurement unit	Scope of evaluation	Evaluation period	
Financial capability	%	Applicant	Most recent year	
<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 balance sheets or if not required by the law of the applicant's country, other financial statements acceptable to the employer for the last 1 year</li> </ul>				
<b>Measurement methodology (methods to accumulate information of the indicator / component to be evaluated)</b>				
<ul style="list-style-type: none"> <li>Formula for soundness (e.g. net assets) Net assets (*1) derived from the latest balance sheet</li> </ul>				
<p>*1: Definition of net assets The difference between total assets and total liabilities</p>				
<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>As the minimum requirement, an applicant's net assets calculated as the difference between total assets and total liabilities should be positive.</li> </ul>				

## Appendix 2: Examples of evaluation criteria for P/Q

	Subject	Requirement	Remarks
<b>1. Eligibility</b>			
1.1	Conflict of interest	The applicant has no conflicts of interest in accordance with ITA.	
1.2	Ineligibility	The applicant has not been declared ineligible by the employer as described in ITA.	
<b>2. Historical contract non-performance</b>			
2.1	History of non-performing contracts	<p>Non-performance of a contract did not occur within the last xx years prior to the deadline for application submission based on all the information on the fully settled disputes or litigation.</p> <p>Fully settled disputes or litigation mean disputes or litigation that have been resolved in accordance with the dispute resolution mechanism under the respective contract and for which the applicant's right to appeal to the court of second instance has been expired.</p>	
2.2	Pending litigation	All pending litigation shall in total not represent more than xx% of the applicant's net worth and shall be treated as resolved against the applicant.	
<b>3. Financial situation</b>			
3.1	Financial performance	<p>The applicant shall submit audited balance sheets or, if not required by the law of the applicant's country, other financial statements acceptable to the employer for the last xx years to demonstrate the current soundness of the applicant's financial position and its prospective long term profitability.</p> <p>As the minimum requirement, the applicant's net assets calculated as the difference between total assets and total liabilities shall be positive.</p>	Financial capability: "Soundness"
3.2	Average turnover	The applicant shall 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 xx years and the minimum average turnover calculated based on the total certified payments received for contracts in progress or completed during the last xx years need to be USD xx or equivalent.	Financial capability: "Turnover"

Notes:

3.1 Financial performance

1) In contracts for procurement of works, applicants will be required at the bidding stage to demonstrate their construction cash flow to verify the soundness and stability of their financial circumstances. The construction cash flow should be calculated by following the procedure below, and the requirement clearly indicated by the employer at the bidding stage:

"Indicate the construction cash flow for a number of months (to the nearest half-month), determined as the total time needed by the employer to pay a contractor's invoice, allowing for (a) the actual time consumed for construction, from the beginning of the month invoiced, (b) the time needed by the engineer to issue the monthly payment certificate, (c) the time needed by the employer to pay the amount certified, and (d) a contingency period of one month to allow for unforeseen delays. The total period should not exceed xx months. The assessment of the monthly amount should be based on a straight-line projection of the estimated cash flow requirement, over the particular contract period, neglecting the effect of any advance payment and retention monies, but including contingency allowances in the estimated contract cost."

2) Financial information provided by an applicant should be of the applicant or partner of JV and not of sister or parent companies.

3) The financial statements provided by applicants should be carefully reviewed for proper evaluation, and the judgement for acceptance or rejection from financial circumstances should be determined based on such proper evaluation. If any abnormality which may cause financial issues occurs, the employer should seek reviews and interpretations from experts.

**4. Applicant's qualification**

**4A. Experience**

4.1	General construction experience	The applicant shall have experience under a construction contract in the role of a contractor, management contractor or subcontractor for at least the last xx years prior to the application submission deadline.	
4.2	Specific construction experience	The applicant shall have experience exclusively in the role of an EPC contractor in at least xx contracts which have been successfully completed outside the Applicant's domicile country/region within the last xx years and that are similar to the proposed works. The similarity shall be based on the physical size (more than xx MW capacities in one Combined-Cycle Power Plant (CCPP) unit, including any type of CCPP configuration), complexity, methods/technology or other characteristics as described in scope of works. In addition, the applicant is required to submit performance test results to ensure its compliance with the performance required by the employer. The applicant is required to have satisfied all the performance requirements by the employer for at least xx% of the projects	Initial performance: "Track record in relation to construction completion" and "Conformity with specified performance"

		delivered.	
4.3	Specific operating experience	<p>At least xx of the contracts provided by the applicant as a track-record shall have successful operation experience of more than xx hours as a total plant at the P/Q application closing date. The technical data and information on the contracts are to be provided with contract details of the end-users.</p> <p>The applicant shall submit the original certificate issued by the end-user (free form) at the time of bid submission.</p>	Initial performance: "Track record in relation to construction completion"
4.4	Past record in relation to termination of a contract	The applicant shall have no record of termination in a contract due to the applicant's fault within the last xx years, with respect to the similar contracts conducted outside the its domicile country/region as an EPC contractor.	Initial performance: "Record of contract termination"
4.5	Track record of faulty construction including delay in completion	The ratio of construction deemed faulty (contracts in which the applicant substantially made monetary payment to the employer at completion) shall be less than xx%, with respect to the similar contracts in which the applicant participated as an EPC contractor outside its domicile country/region within the last xx years.	Initial performance: "Track record of faulty construction including delay in completion"
4.6	Track record of faulty maintenance within the warranty period	The ratio of maintenance deemed faulty (contracts in which the applicant substantially made monetary payment to the employer during the warranty period) shall be less than xx%, with respect to the similar contracts in which the applicant participated as an EPC contractor outside its domicile country/region within the last xx years.	Supply stability: "Track record of faulty maintenance within the warranty period"
4.7	Track record of long-term forced outages within the warranty period	The ratio of projects experiencing long term forced outages due to reasons other than wars, civil wars, insurrection, disasters, etc. (projects experiencing FOH equivalent to 30 days or more within the warranty period (as defined in <i>IEEE Std 762TM-2006</i> )) shall be less than xx%, with respect to the similar projects in which the applicant participated as an EPC contractor outside its domicile country/region within the last xx years.	Ability to Smoothly Stop and Recover: "Track record of long-term forced outage within the warranty period"
4.8	Track record in relation to non-conformance with the environment protection law	The ratio of projects experiencing non-conformance with the environment protection law (projects in which the applicant or the applicant's board of directors received public prosecution or administrative disposition relating to the local environment protection law) shall be less than	Environmental and social consideration: "Track record in relation to non-conformance with the

		xx %, with respect to the similar projects in which the applicant participated as an EPC contractor outside its domicile country/region within the last xx years.	environment protection law”
4.9	Track record in relation to employment from the economy	The ratio of projects with xx% or more of workers hired from the economy ((Total working hours of employees possessing the project country's nationality at the construction site during the contract period / Total working hours of employees at the construction site during the contract period) x 100) shall be more than xx%, with respect to the similar projects in which the applicant participated as an EPC contractor outside its domicile country/region within the last xx years.	Environmental and social consideration: “Track record in relation to employment from the economy”
4.10	Track record in relation to fatal accidents	The ratio of projects experiencing fatal accidents attributable to the construction work (accidents which involved one or more deaths, whether caused by the applicant, sub-contractor or other vendor and within or outside the construction site) shall be less than xx%, with respect to the similar projects in which the applicant participated as an EPC contractor outside its domicile country/region within the last xx years.	Safety: “Track record of fatal accidents”
<b>4B. Equipment capabilities</b>			
4.11	Operating experience of reference gas turbines	<p>The gas turbine shall be supplied by an original equipment manufacturer (OEM) of the gas turbine to be proposed who has developed, designed and manufactured and be able to technically and substantially support the maintenance.</p> <p>The number of the reference gas turbines shall be xx and their total successful commercial operating hours shall be more than xx hours with the longest operating hours' unit of more than xx hours at the P/Q application closing date.</p> <p>The data and information on the reference gas turbines are to be provided with contract details of the end-user.</p> <p>The applicant shall submit the original certificate from the end-user (free form) at the time of bid submission.</p>	

4.12	Similarity of proposed gas turbine	The proposed gas turbine shall be technically similar to the reference gas turbines specified above. The "technically similar" shall mean xx-type machine and shall denote that it has the same configuration with the same dimensions, the same design parameters and the same or better materials as the reference gas turbines.	
4.13	Heat Recovery Steam Generator (HRSG)	Each manufacturer shall have the commercial experiences of at least xx reference heat recovery steam generators with a capacity of more than xx t/h of steam generation which were put into operation in last xx years. The proposed HRSG shall be of similar configuration to the reference HRSGs.	
4.14	Steam turbine	Each manufacturer shall have the commercial experiences of at least xx reference steam turbines with a capacity of more than xx MW which were put into operation in last xx years. The proposed steam turbine shall be of similar configuration to the reference steam turbines.	
4.15	Gas turbine generator	Each manufacturer shall have the commercial experiences of at least xx reference gas turbine generators with a capacity of more than xx MVA which were put into operation in last xx years. The proposed gas turbine generator shall be of similar configuration to the reference gas turbine generators.	
4.16	Boiler	Each manufacturer shall have the commercial experiences of at least xx reference boilers with a capacity of more than steam temperature xx degrees and steam pressure xx MPa which were put into operation in last xx years. The proposed boilers shall be of similar configuration to the reference boilers.	
4.17	Desulfurization equipment	Each manufacturer shall have the commercial experiences of at least xx reference desulfurization equipments with a capacity of more than desulfurization efficiency xx % which were put into operation in last xx years.	
4.18	NOx removal device	Each manufacturer shall have the commercial experiences of at least xx reference NOx removal devices with a capacity of more than NOx removal efficiency xx % which were put into operation in last xx years.	
4.19	Precipitator	Each manufacturer shall have the commercial experiences of at least xx reference precipitators with a capacity of more than precipitation	



		efficiency xx % which were put into operation in last xx years.	
4.20	Draft & recirculating fan system	Each manufacturer shall have the commercial experiences of at least xx reference ventilation equipments with a capacity of more than xx m3/min which were put into operation in last xx years.	
<p>Notes:</p> <p>4.1 General construction experience  A management contractor is a firm which takes on the role of contract management as a general contractor of sort could do. It does not normally perform directly the construction work(s) associated with the contract. Rather, it manages the work of other (sub) contractors while bearing full responsibility and risk for price, quality, and timely performance of the work contract.</p> <p>4.2 Specific construction experience  Experience information provided by an applicant should be of the applicant or partner of JV and not of sister or parent companies.</p>			

### Appendix 3: Examples of qualification criteria in bidding specification

Requirement	Remarks																																																																																
<b>1. Update of information</b>																																																																																	
The applicant and applicant's subcontractors shall continue to meet the criteria including data proposed by the applicants used at the time of P/Q.																																																																																	
<b>2. Financial resources</b>																																																																																	
<p>Using the attached bidding forms, the bidder shall demonstrate that it has access to, or has available, liquid asset, unencumbered real assets, lines of credit and other financial means (independent of any contractual advance payment) sufficient to meet:</p> <p>a) The cash flow requirements estimated to be USD xx for the subject contract. In case of Joint Venture, all partners combined shall meet the above requirement: each partner shall meet at least xx% of the above requirements; one partner shall meet at least xx% of the above requirement.</p> <p>b) The cash flow requirements on works currently in progress and for future contract commitments. In case of Joint Venture, all partner combined shall satisfy the above requirement.</p>	Financial capability: "Liquid asset"																																																																																
<b>3. Personnel</b>																																																																																	
The applicant must demonstrate that it will have the personnel for the key positions that meet the following requirements:																																																																																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">NO</th> <th style="width: 45%;">Position</th> <th style="width: 20%;">Total work experience (years)</th> <th style="width: 30%;">Similar work experience (years)</th> </tr> </thead> <tbody> <tr><td>1</td><td>Project manager</td><td>xx</td><td>xx</td></tr> <tr><td>2</td><td>Lead engineering manager</td><td>xx</td><td>xx</td></tr> <tr><td>3</td><td>Lead engineering civil works</td><td>xx</td><td>xx</td></tr> <tr><td>4</td><td>Lead engineering mechanical works (power block)</td><td>xx</td><td>xx</td></tr> <tr><td>5</td><td>Lead engineering mechanical works (BOP)</td><td>xx</td><td>xx</td></tr> <tr><td>6</td><td>Lead engineering electrical works</td><td>xx</td><td>xx</td></tr> <tr><td>7</td><td>Lead engineering I&amp;C</td><td>xx</td><td>xx</td></tr> <tr><td>8</td><td>Lead engineering substation</td><td>xx</td><td>xx</td></tr> <tr><td>9</td><td>Lead engineering transmission line</td><td>xx</td><td>xx</td></tr> <tr><td>10</td><td>Site manager</td><td>xx</td><td>xx</td></tr> <tr><td>11</td><td>Lead site engineer GT</td><td>xx</td><td>xx</td></tr> <tr><td>12</td><td>Lead site engineer ST</td><td>xx</td><td>xx</td></tr> <tr><td>13</td><td>Lead site engineer HRSG</td><td>xx</td><td>xx</td></tr> <tr><td>14</td><td>Lead site engineer BOP</td><td>xx</td><td>xx</td></tr> <tr><td>15</td><td>Lead site engineer electrical</td><td>xx</td><td>xx</td></tr> <tr><td>16</td><td>Lead site engineer I&amp;C</td><td>xx</td><td>xx</td></tr> <tr><td>17</td><td>Lead site engineer civil</td><td>xx</td><td>xx</td></tr> <tr><td>18</td><td>Lead site engineer substation</td><td>xx</td><td>xx</td></tr> <tr><td>19</td><td>Lead site engineer transmission</td><td>xx</td><td>xx</td></tr> </tbody> </table>		NO	Position	Total work experience (years)	Similar work experience (years)	1	Project manager	xx	xx	2	Lead engineering manager	xx	xx	3	Lead engineering civil works	xx	xx	4	Lead engineering mechanical works (power block)	xx	xx	5	Lead engineering mechanical works (BOP)	xx	xx	6	Lead engineering electrical works	xx	xx	7	Lead engineering I&C	xx	xx	8	Lead engineering substation	xx	xx	9	Lead engineering transmission line	xx	xx	10	Site manager	xx	xx	11	Lead site engineer GT	xx	xx	12	Lead site engineer ST	xx	xx	13	Lead site engineer HRSG	xx	xx	14	Lead site engineer BOP	xx	xx	15	Lead site engineer electrical	xx	xx	16	Lead site engineer I&C	xx	xx	17	Lead site engineer civil	xx	xx	18	Lead site engineer substation	xx	xx	19	Lead site engineer transmission	xx	xx
NO	Position	Total work experience (years)	Similar work experience (years)																																																																														
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19	Lead site engineer transmission	xx	xx																																																																														

	line		
20	Accident prevention officer	xx	xx

The applicant shall provide details of the proposed personnel and their experience records using the forms provided in the bidding documents.

#### 4. Equipment

The applicant must demonstrate that it will have access to the key Contractor's equipment listed below:

NO	Equipment type and characteristics	Minimum number required
1	xx	xx
2	xx	xx
3	xx	xx
4	xx	xx

The applicant shall provide further details of the proposed items of equipment using the forms provided in the bidding documents.

#### 5. Subcontractors/manufacturers

Subcontractors/manufacturers for major items of supply or services identified in the P/Q document must meet or continue to meet the minimum criteria specified therein for each item.

Subcontractors/manufacturers which provide the following additional major items of supply or services must meet the following minimum criteria each of the items:

NO	Description of item	Minimum criteria to be met
1	Steam turbine generator	The manufacturer shall have at least xx reference generators with a capacity of more than xx MVA which were put into operation in the last xx years. The proposed generator shall be of similar type to reference generators.
2	Cooling tower	The manufacturer shall have the commercial experience of at least xx cooling towers with a capacity of more than xx m3/h which were put into operation in the last xx years.
3	Demineralized water treatment system	The manufacturer shall have the commercial experience in combined cycle power plants of at least xx demineralized water treatment systems with a capacity of more than xx ton/day/train which were put into operation in the last xx years.
4	Waste water measure system	The manufacturer shall have the commercial experience in combined cycle power plants of at least xx waste water treatment systems which were put into operation in the last xx

		years.
5	Feedwater pumps	The manufacturer shall have xx sets and xx years of successful operation experience with the same or larger capacity and pressure.
6	Boiler	The manufacturer shall have xx sets and xx years of successful operation with the similar steam conditions and capacity. And the proposed boiler shall be of similar configuration to reference boilers.
7	Desulfurization equipment	The manufacturer shall have desulfurization equipment with a capacity of more than desulfurization efficiency xx % and xx projects that satisfied all performance requirements and more than xx years of successful operation experience.
8	NOx removal device	The manufacturer shall have NOx removal device with a capacity of more than NOx removal efficiency xx % and xx projects that satisfied all performance requirements and more than xx years of successful operation experience.
9	Precipitator	The manufacturer shall have precipitator with a capacity of more than precipitation efficiency xx % and xx projects that satisfied all performance requirements and more than xx years of successful operation experience.
10	Draft & recirculating fan system	The manufacturer shall have xx sets and xx years of successful operation experience with the same or larger capacity.
11	DCS	The offered model shall have at least xx years of trouble free operation in the combined cycle power plant and shall have commitment from OEM for spare parts/service support at least for xx years from the date of bid closing.
12	Relays	Relays shall be identical to the proposed relays with xx years of proven field experiences. xx (company name (made in xx)), xx (company name (made in xx)) or equivalent.
13	Substation Automation (SA)	The SA supplier (manufacturer) shall have more than xx years of design, supply and successful operation experiences similar to the Project.
14	Substation up to xx kV	The substation contractor responsible for engineering, management, supervision, procurement, installation and quality assurance of all substation works shall have

		<p>successfully completed xx project as a main substation contractor, complying with the following requirements:</p> <ul style="list-style-type: none"> <li>- The contract was made within the last 10 years.</li> </ul> <p>The contract must be for substations of similar complexity.</p>
15	Transmission line up to xx kV	<p>The transmission line contractor, responsible for engineering, management, supervision, procurement, installation and quality assurance of all transmission line works shall have successfully completed xx projects as a main Transmission line contractor, complying with the following requirements:</p> <ul style="list-style-type: none"> <li>- The contract was made within the last xx years.</li> </ul> <p>The contract must be for transmission lines of similar complexity.</p>
16	Supervisory Control And Data Acquisition (SCADA)	<p>The SCADA contractor responsible for engineering, management, supervision, procurement, installation and quality assurance of all SCADA works shall have successfully completed xx project as a main SCADA contractor, complying with the following requirements</p> <ul style="list-style-type: none"> <li>- The contract was made within the last xx years.</li> </ul> <p>The contract must be for SCADA project of similar complexity.</p>
17	Civil, building & structural works	<p>The subcontractor shall have general experience under contracts in the role of a contractor, sub-contractor, or management contractor for civil, building and structural works for at least the last xx years prior to the bid submission deadline and have specific experience in participating as a contractor, management contractor or sub-contractor in at least xx contracts for civil, building and structural works for power plant projects of similar methods or complexity within the last xx years that have been successfully or are substantially completed.</p>

Failure to comply with this requirement will result in the rejection of the subcontractor. In the case of an applicant who supplies and installs major items of supply that the applicant did not manufacture or produce, the applicant shall provide manufacturer's authorization indicating that the applicant has been duly authorized by the manufacturer or producer of the related plant and equipment or components to supply and/or install such items in the employer's country. The applicant is responsible for ensuring

that the manufacturer or producer complies with the requirement of the bidding specification and meets the minimum criteria listed above for such items.	
<b>6. Additional experiences certificates</b>	
The applicant shall submit the original certificate submitted by the end-user (free form) if the same was not submitted during the P/Q stage.	

(Reference) The evaluation of the applicant's ability to realize "LCC" will be based on the bidding price defined by the employer. The relevant performance indicator during feasibility study, planning and construction phase for "LCC" is the "LCC considering all five other components".