

Appendix A

*Description of Tashkent Thermal Power Plant
Modernization Project*

1. Project Description

1.1 Project Site

The Project site is located at the distance of approximately 20km Northeast from the central area of Tashkent City, the metropolitan of Uzbekistan. The altitude of the site is 502 m above the averaged sea level of Baltic Sea.

The new combined cycle power plant (hereinafter to be referred as the Plant) will be constructed in the premise of the existing Tashkent Thermal Power Plant, which comprise of 12 units of conventional type thermal power plants fueled with a main fuel of natural gas and a standby fuel of heavy oil. Their installed capacities range from 150 to 165MW and the total installed capacity is 1,860MW. They were installed 32 to 41 years ago and have been superannuated. After the new power plant will have been put into commercial service, the existing No.11 and 12 units will be used for a standby purpose for a while and will be demolished in near future.

The land of the existing power plant is owned by SJSC "Uzbekenergo". The premise of the existing power plant is approximately 146 hectares. The area for installation of the new combined cycle power plant is tentatively 150m×200m including the area necessary for installation of all auxiliary facilities including a fuel gas compressor station, a fuel gas pre-treatment system, a make-up water treatment and a waste water treatment systems, two (2) main transformers and overhead connection lines. The site is accessible by railway

The site is roughly classified into three layers of the first, second and third layers starting the ground surface. The first surface is primarily a clay and silt (loam) layer with 9 to 12 m thickness, which partly contains two to three sandy clay (sandy loam) layers with 2 to 3 m thickness. The second layer is a conglomeratic layer of 2 to 3 m thick, on the top of which lies a sand layer containing conglomerates with 0.6 to 1 m thickness. The third layer, below more than 15 m under the ground surface, forms a relatively hard lime-type clay (loam) layer. The ground water level exists between 2 to 3 m below the ground surface. The site is in seismic zone 9 on a 12-magnitude scale.

1.2 Plant Description

The Plant will be a nominal 370 MW multi-shaft combined cycle power plant with one (1) gas turbine/generator, one (1) unfired type heat recovery steam generator, one (1) steam turbine/generator and two (2) main transformers complete with associated equipment and accessories. The bottoming cycle system will be of triple-pressure reheat type. The steam turbine shall be designed so that the low-pressure steam can be

extracted from it as a heat source to produce the hot water for export during the wet season. The plant shall be normally operated on the CRT consoles located in the Block Control Room to be installed in the gas turbine or steam turbine building. The control panel in the existing Central Control Room will be equipped for monitoring of the operating conditions of the Plant. The cooling system of the generators is of an air cooled type. The specific description of the Plant is shown in the Table 1

The cooling water system for the steam turbine condenser and for plant auxiliary equipment will be of a once through freshwater cooling system. The water pumped up from Bozsus canal will be used as a cooling medium. The site cooling water temperatures are shown in Table 2. Make-up water to the plant will be the treated canal water.

The natural gas supply pressure at the terminal points is scheduled to be 0.7MPa and is not high enough to feed the gas turbine. Therefore, natural gas compressors are required with the proper pre-treatment system consisting of filters and a knockout drum.

1.3 Plot Plan

The site area incorporates a turbine building, an outdoor heat recovery steam generator, a natural gas pre-treatment system and compressor station, a water treatment building, main transformer yards, and overhead transmission connection lines. The turbine building houses a gas turbine/generator, a steam turbine/generator with associated supporting mechanical/electrical equipment, a control room, an electrical switchgear room, a battery room, miscellaneous offices and a warehouse. An overhead travelling crane is provided to lift the main components for maintenance. There is a necessary lay-down area for disassembled components in the turbine building. The water treatment equipment building will house the demineralized water system and the pretreatment system. Wastewater from the Plant will be processed by the new wastewater treatment system prior to being discharged into the circulating water discharge channel.

The circulating water pumps are installed with a lifting device in the pump house located at the extended end of the existing water intake canal.

The 220kV sub-station is located adjacent to the existing sub-station.

1.4 Natural Gas Supply System

The gas turbine shall be designed for natural gas without backup oil fuel. Gas compressors shall be used to boost the gas pressure of 0.7MPa at terminal point to approximately 4 MPa, which may be changed depending the types of gas turbines. Any proper pre-treatment system consisting of filter/separators and a knockout drum shall be facilitated to clean the natural gas to the extent that it will be used for the gas turbine without any difficulties. Typical composition of the natural gas is shown in the Table 3.

1.5 Water Supply System

The water taken from Bozsai canal will be used as makeup water to the Plant.

The city water will be used as drinkable water, fire protection water and miscellaneous service water.

The water to be diverged from the existing ring pipe line will be used for fire protection of the Plant.

1.6 Demineralizer System

The demineralizer system shall be newly provided for makeup of the water with acceptable quality to the HRSG. The system comprises of a pre-treatment system consisting of a coagulator and a filter, a demineralizer system and a chemical storage/regeneration equipment.

1.7 Wastewater System

Wastewater from the plant will consist of neutralized regeneration waste from the makeup demineralizer system, waste from the pretreatment system, HRSG blowdown, floor drains from the turbine building, potentially contaminated yard drains from the transformer area, and sanitary wastewater.

All wastewaters will be separately transferred to the existing wastewater treatment plants suitable for treatment of them.

1.8 Electrical System

The electrical system and associated equipment shall be designed with flexibility and adequate redundancy to provide a reliable source of power for all auxiliaries that will be required for the Plant.

The existing 220 kV switchyard system is of air insulated outdoor type. The bus switching arrangement utilizes double bus bars radically feeding load or receiving generation via a circuit breaker. There are nineteen (19) circuit breaker bays of one (1) bus coupler, seven(7) outgoing transmission line bays, eight (8) receiving generation, one (1) interconnection with 500 kV switchyard, one (1) voltage transformer bay, one (1) reserve.

The voltage of the power output from the gas turbine and steam turbine generators will be stepped up to 220 kV via individual transformers. The switchyard steel structure to be extended adjacent to the existing structure for the Plant will be designed to accommodate two (2) bays to connect the power output of the Plant. One bay is for connection of the power output from the gas turbine generator, while the other is for that from the steam turbine generator. The 220 kV switchyard system for the Plant will be of also air insulated outdoor type.

The power output via the main transformers will be transmitted to the 220kV switchyard with overhead lines.

The Plant auxiliary loads will be fed from either the gas turbine generator via the auxiliary transformer or the external network via the startup transformer. The auxiliary and startup transformers will be connected to two (2) medium voltage switchgear buses via independent circuit breakers. The auxiliary power will be distributed from these medium voltage switchgear buses (6.3 kV).

1.9 Operation and Control System

A Block Control Room will be accommodated in the gas turbine or steam turbine building of the Plant and be equipped with a modern DCS control system so that the export heat and power can be automatically controlled to meet the demands of them. CRTs for monitoring of conditions and keyboard panels for operation of the Plant will be installed in the room.

The operating conditions can be also monitored through the Plasma Display Type Screen in the Block Control Room and the existing Central Control Room. The CRT operation will be employed to make a man-machine interface easier and to facilitate

easier monitoring and operation and higher operating reliability. The CPU shall be of duplicate configuration using the standby redundant system to ensure the reliability of the control system.

2. Scope of Works

2.1 Works and Services to be provided by the Contractor

The works and services to be provided by the Contractor shall include the design, manufacture, fabrication, factory testing, packing, transportation to site, unloading and storage at Site, erection, testing, trial operation, commissioning, reliability run, performance guarantee testing and handing over for commercial operation of the Plant on a full turn-key basis. The main works and services are as follows, but not limited to them.

- (1) Gas turbine and its accessories
- (2) Gas turbine generator and its accessories
- (3) Heat recovery steam generator and its accessories
- (4) Steam turbine and its accessories
- (5) Steam turbine generator and its accessories
- (6) Electrical system for gas turbine generator
- (7) Electrical system for steam turbine generator
- (8) 220kV switchyard system including interconnection lines from main transformers
- (9) Electrical systems common to the Plant
- (10) Mechanical systems common to the Plant
- (11) Steam turbine condenser and its accessories

***Tashkent Power Plant Modernization Project
370MW Combined Cycle Power Plant***

- (12) Circulating cooling water system
- (13) Makeup water treatment system
- (14) Water treatment system
- (15) Closed cooling water system for cooling of lubricating oil and other cooling media.
- (16) Hot water supply system
- (17) Civil works of equipment and building foundations and concrete structures.
- (18) Architectural works with necessary facilities.
- (19) Fire protection system for the Plant
- (20) Natural gas pre-treatment and compressor station
- (21) Main stack and bypass stack and diverter damper
- (22) Station and instrument air supply system
- (23) Plant control and monitoring system
- (24) Continuous emission monitoring system
- (25) Erection works of all equipment in scope of supply of the Contractor
- (26) Training of SJSC "Uzbekenergo's" staff at manufacturer's factory
- (27) Training of SJSC "Uzbekenergo's" staff at site
- (28) All necessary documentation related to the operating procedures and maintenance of the Plant.
- (29) All documents and as-built drawings of the Plant

***Tashkent Power Plant Modernization Project
370MW Combined Cycle Power Plant***

- (30) Personal computer based plant simulation device for training of operators
- (31) Six (6) months supervision by three (3) contractor engineers for operation and maintenance support
- (32) Spare parts for five (5) years operation
- (33) Factory and site inspections and tests
- (34) Trial operation and commissioning
- (35) Reliability test and performance guarantee tests
- (36) Application and acquisition of permits and certificates for the Plant
- (37) Necessary modification works of existing buildings to be reused for the Plant
- (38) Standard and special tools

2.2 Works and Services to be provided by SJSC "Uzbekenergo"

The following works and/or services associated with the Plant will be provided by SJSC "Uzbekenergo"

- (1) Tap water, service water, auxiliary steam, low and medium voltage electric power for use during construction, commissioning and guarantee and reliability tests.
- (2) Detailed Environmental Impact Assessment (EIA) report
- (3) All necessary environmental permits for construction and operation of the plant.
- (4) Topography mapping/surveying.
- (5) Site Soil Investigation/Borings.
- (6) Natural gas and back feed electric power for commissioning and guarantee

and reliability tests from 220kV transmission line.

- (7) Preparation and leveling of site area including temporary storage area during construction and preparation of access road for carrying-in of heavy components
- (8) Demolition of any structures on the site surface and underground, if any.
- (9) Relocation of the existing natural gas and hot water pipelines.
- (10) Relocation and modification of the existing 35 kV and 220 kV overhead lines
- (11) Relocation of maintenance facilities in existing workshop to the existing building
- (12) Space to warehouse the spare parts and special maintenance facilities
- (13) Fencing around the Plant site, access road to the equipment and drainages inside the Plant site.
- (14) Labours, facilities and tools available at the site for the inspection at the end of Defect Liability Period
- (15) Accommodation fees, daily allowance and traveling and transportation fees for witness of inspection and test at factories of equipment
- (16) Periodic provision of operation and maintenance record data and information during the Defect Liability Period to the Contractor and the Consultant.

3. Utility Services/Connections

Utility connection interfaces shall consist primarily of the followings:

- (1) Interconnections to existing 220 kV switchyard.
- (2) Natural gas fuel supply line.
- (3) Condenser circulating water discharge connection

- (4) Auxiliary steam for start-up of the steam turbine
- (5) HRSG makeup water
- (6) Waste water
- (7) Potable water
- (8) Service water
- (9) Fire fighting water
- (10) Service air
- (11) Service steam
- (12) Extracted steam to the steam/hot water converter
- (13) Return steam drain from steam/hot water converter
- (14) Instrument air
- (15) 6.3kV electric power for interconnection
- (16) Low voltage electric power for construction

4. Climate

According to the ambient temperature data during the past 20 years, the average annual temperature is calculated at 16.0 °C with a maximum temperature of 41.1 °C and minimum temperature of – 15.5 °C. Annual average relative humidity is 52.0 % with higher value during winter season and lower value during summer season. Averaged annual rainfall is 405mm with the maximum hourly rainfall of 3mm.

The site ambient temperature conditions and design conditions are shown in Table 1.

5. Design Criteria

The design criteria for the Plant will conform to the International codes and Standards. Environmental considerations such as air quality, thermal discharge, and wastewater effluent quality will be in compliance with Uzbekistan environmental standards.

Plant equipment will be in compliance with the internationally acceptable codes and standards. Civil and architectural works will conform to Uzbekistan standards.

6. Project Completion Date

The combined cycle will be completed and ready for commercial operation within 34 months from the date of Proceed to Notice, which is expected to be May 1, 2007. The advanced commercial operation of the gas turbine/generator package will not be considered.

Tashkent Power Plant Modernization Project
370MW Combined Cycle Power Plant

Table 1 Specific Description of the Plant

1. Plant Specification	
Type	Unfired Multi-shaft Type Combined Cycle Cogeneration Plant with Bypass Stack
Nominal Power Output Capacity without Steam Extraction	370MW on 16 °C ambient temperature, 52% of relative humidity and 12 °C of cooling water temperature
Heat Export Capacity with Steam Extraction	Maximum 100 Gcal/h on 3 °C of ambient temperature and 6 °C of cooling water temperature
Fuel	Natural Gas
Number of Units	One (1)
Plant Configuration	The main components are : One (1) Gas Turbine One (1) Heat Recovery Steam Generator One (1) Extraction Condensing Steam Turbine One (1) Generator for Gas Turbine One (1) Generator for Steam Turbine Two (2) Main Transformers
2. Gas Turbine	
Type	Simple Open Cycle Heavy Duty Single-shaft
Gas Temperature at 1 st Stage Nozzle rpm	1,300 °C Class inlet temperature Speed 3,000
NOx emission	25 ppm vol. (15% O ₂ dry)
3. Heat Recovery Steam Generator	
Type	Unfired Gas Lateral or Vertical Flow Natural or Forced Circulation
Steam Generation	Approximately 330 t/h
Pressure (nominal)	High pressure 10 MPa

**Tashkent Power Plant Modernization Project
370MW Combined Cycle Power Plant**

Temperature (nominal)	Intermediate pressure	2.5 MPa
	Low pressure	0.5 MPa
	High pressure	540 °C
	Intermediate pressure	540 °C
	Low pressure	260 °C

4. Steam Turbine

Type	Reheat, extraction/condensing, two (2) cylinders, downward exhaust with surface condenser
Speed	3,000 rpm
Exhaust pressure	8 kPa

5. Circulating Water Pump

Type	Motor driven vertical mixed flow type
Number	One (1)

6. Intake Water System

Type	From intake canal through trash rack and travelling screen
------	------------------------------------------------------------

7. Electrical Equipment

7.1. Generators for gas turbine and steam turbine

Type	Horizontal cylindrical rotor, rotating field synchronous generator
Rated Nominal Capacity	300 MVA/150 MVA
Rated Frequency	50 Hz
Synchronous Speed	3,000 rpm
Rated Voltage	22 kV
Power Factor	0.85 lagging
Cooling Method	Air cooled
Excitation Method	Thyristor static with a separated back-up exciter system.
Insulation Class	Class F with Class B temperature rise

7.2 Switchyard

Type	Air insulated outdoor type
------	----------------------------

Tashkent Power Plant Modernization Project
370MW Combined Cycle Power Plant

Bus system	Double bus and reserve bus with single feeder circuit breaker for load or generation
Nominal Voltage	220 kV
Incoming Bays	Two (2)

**Tashkent Power Plant Modernization Project
370MW Combined Cycle Power Plant**

**Table 2 Site Temperature of Air and
Water and Humidity**

<u>Ambient Air (monthly average) Temperature</u>	
	<u>Dry Bulb°C</u>
January	- 0.3
February	- 5.3
March	11.9
April	17.2
May	24.9
June	28.2
July	27.2
August	25.8
September	19.7
October	12.8
November	10.6
December	4.7
Minimum air temperature:	- 15.5°C
Maximum air temperature:	41.1°C
Yearly average temperature:	16.0°C

<u>Ambient Air (monthly average) Relative Humidity (%)</u>	
January	73
February	66
March	55
April	53
May	40
June	30
July	34
August	39
September	39
October	62
November	68
December	69
Minimum humidity:	9
Yearly average humidity	52

Cooling water

Maximum water temperature:	16°C
Minimum water temperature:	3°C
Average water temperature:	9.5°C

Tashkent Power Plant Modernization Project
370MW Combined Cycle Power Plant

Table 3 Typical Properties of Natural Gas (Shurtan)

Properties	
Compositions	Volume Percent (%)
Methane	91.79
Ethane	3.89
Propane	0.92
Normal Butane	0.13
Isobutane	0.12
Nitrogen	0.73
Carbon Dioxide	2.35
Hydrogen Sulfide	0.07(Max. 0.12)
Total	100.0
Specific Energy	MJ/Nm ³ kg
Gross specific energy	40.53
Net specific energy	36.53
Specific Gravity	0.7903 kg/Nm ³
Temperature	Min. 2°C, Max. 26°C
Pressure	0.6 MPa

Attachment A

Application Forms

***Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant***

LIST OF FORMS

Letter of Application

Application Form (1)

Application Form (2)

Application Form (2A)

Application Form (2B)

Application Form (3)

Application Form (3A)

Application Form (4)

Application Form (5)

Application Form (6)

Application Form (7)

Application Form (8)

Application Form (9)

Application Form (10)

Application Form (11)

General Information

General Experience Record

Joint Venture or Consortium Summary

Joint Venture or Consortium Agreement

Particular Experience Record

Contracts of Power Plants

Summary of Current Contracts of Power Plants in Progress

Multi-shaft Combined Cycle Power Plants (Blocks)

Gas Turbines

Heat Recovery Steam Generators

Steam Turbines

Generators

Financial Capability

Litigation History

**Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant**

[Letterhead paper of the Applicant, or partner responsible for a joint venture, including full postal address, telephone no., fax no., telex no., and cable address]

Date

To: _____ (name of Employer)

Sirs,

1. Being duly authorized to represent and act on behalf of
.....
(hereinafter to be referred to as "the Applicant"), and having reviewed and fully understood all the pre-qualification information provided, the undersigned hereby apply to be pre-qualified as a bidder of the following Contract for (name of Project) _____.

Contract Number	Contract Name
No.	(Insert name of Contract)

2. Attached to this letter are copies of the following original documents defining⁽¹⁾:
- (a) the Applicant's legal status;
 - (b) the principal place of business; and
 - (c) the place of registration and the nationality of the Owners (for applicants who are partnership or individually-owned firms).
3. Your agency and its authorized representatives are hereby authorized to conduct any inquires or investigations to verify the statements, documents, and information submitted in connection with this application, and to seek clarification from our bankers and clients regarding any financial and technical aspects. This Letter of Application will also serve as authorization to any individual or authorized representative of any institution referred to in the supporting information, to provide such information deemed necessary and requested by yourselves to verify statements and information provided in this application, or with regard to the resources, experience, and competence of the Applicant.

(1) For applications by a joint venture or consortium, all the information required as pre-qualification documents shall be provided as the joint venture or the consortium. The lead partner shall be clearly identified. Each partner in the joint venture or the consortium shall sign the letter.

Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant

4. Your Agency and its authorized representatives may contact the following persons for further information:

General and managerial inquiries	
Contact 1	Telephone 1
Contact 2	Telephone 2

Personnel inquiries	
Contact 1	Telephone 1
Contact 2	Telephone 2

Technical inquiries	
Contact 1	Telephone 1
Contact 2	Telephone 2

Financial inquiries	
Contact 1	Telephone 1
Contact 2	Telephone 2

5. This application is made under the understanding that;
- (a) all information submitted for pre-qualification will be subject to verification at the time of bidding;
 - (b) your Agency reserves the right to:
 - amend the scope and value of any Contract to be bid. In such event, the pre-qualification process will be repeated depending upon the extent of the revised scope and value; and
 - reject or accept any application, cancel the pre-qualification process, and reject all applications; and
 - (c) your Agency shall not be liable for any such actions and shall be under no obligation to inform the Applicant of the grounds for them.
6. Appended to this application, we give details of the participation of each party, including capital contribution and profit/loss agreements, in the joint venture or consortium. We will also specify the financial commitment in terms of the percentage of the value of the Contract, and the responsibilities for execution of the Contract.
7. We confirm that the bid as well as any resulting Contract will be:
- (a) signed so as to legally bind all partners, jointly and severally; and
 - (b) submitted with a joint venture or a consortium agreement providing the joint and several liability of all partners in the event the contract is awarded to us.

**Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant**

8. The undersigned declare that the statements made and the information provided in the duly completed application are complete, true, and correct in every detail.

Signed	Signed
Name	Name
For and on behalf of (name of Applicant or lead partner of a joint venture or a consortium)	For and on behalf of (name of partner)

Signed	Signed
Name	Name
For and on behalf of (name of partner)	For and on behalf of (name of partner)

Signed	Signed
Name	Name
For and on behalf of (name of partner)	For and on behalf of (name of partner)

**Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant**

Application Form (1)

Page of Pages

General Information

All individual firms and each partner of a joint venture or a consortium applying for pre-qualification are requested to complete the information in this form. Nationality information to be provided for all owners or applicants who are partnerships or individually owned firms.

Where the Applicant proposes to use subcontractors for critical components of the works, or for work contents in excess of 25 percent of the value of the whole works, the following information should also be supplied for such subcontractor(s).

1.	Name of firm	
2.	Head office address	
3.	Telephone	Contract
4.	Fax	Telex
5.	Place of incorporation/registration	Year of incorporation/registration

Nationality of owners ⁽¹⁾		
	Name	Nationality
1.		
2.		
3.		
4.		
5.		

⁽¹⁾ To be completed by all owners of partnerships or individually-owned firms

Application Form (2)

Page of Pages

General Experience Record

Name of Applicant or partner of a joint venture or a consortium

All individual firms and all partners of a joint venture or a consortium are requested to complete the information in this form. The information supplied should be the annual turnover of the Applicant (or each member of a joint venture or a consortium), in terms of the amounts billed to clients for each year for work in progress or completed, converted to U.S. dollars at the rate of exchange at the end of the period reported.

Use a separate sheet for each partner of a joint venture or a consortium.

Annual turnover data (construction only)		
Year	Turnover	US\$ equivalent
1.		
2.		
3.		
4.		
5.		

**Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant**

Application Form (2A)

Page of Pages

Joint Venture or Consortium Summary

Names of all partners of a joint venture or a consortium
1. Lead partner
2. Partner
3. Partner
4. Partner
5. Partner

Total value of annual construction turnover, in terms of work billed to clients, in US\$ equivalent, covered at the rate of exchange at the end of the period reported:

Annual turnover data (construction only; US\$ equivalent)						
Partner	Form 2 Page no.	Year 1	year 2	Year 3	Year 4	Year 5
1. Lead Partner						
2. Partner						
3. Partner						
4. Partner						
5. Partner						
6. Partner						
Totals						

Application Form (2B)

Page of Pages

Joint Venture or Consortium Agreement

To: _____

(name and address of the Employer)

The undersigned of this declaration of cooperation are by means of attached Power of Attorney legally authorized to act with regard to _____
_____(name of the Project) and on behalf their organizations.

They hereby declare:

1. that they will legalize a Joint Venture or Consortium Agreement in case that a Contract for the _____ (name of the Project) is awarded to their group;
2. that they have nominated _____ (name of the lead partner) as the Sponser Firm of the group for the purpose of this Bid;
3. that they authorized Mr./Ms. _____ (name of the person who is authorized to act as the Representative on behalf of the Joint Venture or Consortium) to act as the Bidder's Representative in the name and on behalf of their group.
4. that all partners of the Joint Venture or Consortium shall be liable jointly and severally for the execution of the Contract;
5. that this Joint Venture or Consortium is an association constituted for the purpose of the execution of _____ (name of the Project) under this Contract;
6. that if the Employer accepts the Bid of this Joint Venture or Consortium, it shall not be modified in its composition or constitution until the completion of the Contract without the prior consent of the Employer;
7. that each partner's share of the Work, stated as percentage of the total contract amount, shall be as follows:

Name of Partner	Share of the Work (as percentage of the contract amount)
1. Lead partner	
2. Partner	
3. Partner	
4. Partner	

**Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant**

Name of Partner	Share of the Work (as percentage of the contract amount)
Total	100

Give names and positions of the proposed Joint Venture or Consortium Representatives, as well as organization's names and addresses:

1.	Name:	Signature:
	Position:	Date:
	Representative of : (Organization's Name)	

2.	Name:	Signature:
	Position:	Date:
	Representative of : (Organization's Name)	

3.	Name:	Signature:
	Position:	Date:
	Representative of : (Organization's Name)	

4.	Name:	Signature:
	Position:	Date:
	Representative of : (Organization's Name)	

5	Name:	Signature:
	Position:	Date:
	Representative of : (Organization's Name)	

Application Form (3)

Page of Pages

Particular Experience Record

Name of Applicant

The Applicant shall be required to pass the specified requirements applicable to this form, as set out in the “pre-qualification Instructions to Applicants”.

On a separate page, using the format of Form (3A), each applicant or partner of a joint venture or a consortium is requested to list all contracts of a value equivalent to or more 250 Million USD, of similar combined cycle power plants to the contract for which the Applicant wishes to qualify, undertaken during the last five (5) years. The value should be based on the currencies of the contracts converted into US dollars, at the date of substantial completion or for current contracts at the time of award. The information is to be summarized using Form (3A), for each contract completed or under execution by the Application or by each partner of a joint venture or a consortium.

Application Form (3A)

Page of Pages

Contracts of Power Plants

Name of Applicant or partner of a joint venture or a consortium

Use a separate sheet for each contract.

1.	Number of contract
	Name of contract
	Country
2.	Name of employer
3.	Employer address
4.	Type of power plants and special features relevant to the contract for which the Applicant wishes to pre-qualify
5.	Contract role (check one) <input type="checkbox"/> Sole Contractor <input type="checkbox"/> Subcontractor <input type="checkbox"/> Partner in a joint venture or a consortium
6.	Value of the total contract (in specified currencies at completion, or at date of award for current contracts). <div style="display: flex; justify-content: space-around; margin-top: 5px;"> Currency Currency Currency </div>
7.	Equivalent value US\$
8.	Date of award
9.	Date of completion
10.	Contract duration (years and months) <div style="display: flex; justify-content: flex-end; margin-top: 5px;"> _____ years _____ months </div>

Application Form (4)

Page of Pages

Summary of Current Contracts of Power Plants in Progress

Name of Applicant or partner of a joint venture or a consortium

The Applicant and each partner to the application shall provide information on their current commitments to all contracts of similar power plants that have been awarded, or for which a letter of intent or acceptance has been received.

Name of contract	Value of contract (current US\$ equivalent)	Expected completion date
1.		
2.		
3.		
4.		
5.		
6.		

Application Form (5)

Page of Pages

Multi-shaft Combined Cycle Power Plants (Blocks)

Name of Applicant

The Applicant shall provide adequate information to demonstrate clearly that it meets the requirements shown in Sub-clause 2.2-7) of Instruction to Applicants. A separate Form (5) shall be prepared for each combined cycle plant (block) at most five (5) plants (blocks).

Descriptions	Data
Name of Purchaser	
Location of Installation	
Country of Installation	
Type of Shaft Configuration	
Number of Gas Turbines for Block	
Power Block Site Rated Capacity MW	
Date of Commercial Operation Start	
Gas Turbine Model Number/Supplier	
Country of Gas Turbine Manufacture	
Type of Main Fuel	
Type of Standby Fuel (if applicable)	
Gas Turbine Capacity at ISO Conditions MW	
Gas Turbine Capacity at Site Conditions MW	
Gas Turbine Rotating Speed RPM	
Name of Generator Supplier	
Type of Cooling Method of Generators	
Country of Generator Manufacture	
Generator Rating for Gas Turbine MVA	
Generator Rating for Steam Turbine MVA	
Name of Steam Turbine Supplier	
Country of Steam Turbine Manufacture	
Steam Turbine Capacity at Site Condition MW	
Steam Turbine Configuration/Type	

Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant

Descriptions	Data
HP Turbine Inlet Steam Pressure bar	
HP Turbine Inlet Steam Temperature °C	

Combined Cycle Power Block	Data
Steam Turbine Rotating Speed RPM	
Name of HRSG Supplier	
Country of HRSG Manufacture	
HRSG HP SH Steam Outlet Pressure bar	
HRSG HP SH Steam Outlet Temperature °C	
HRSG Total Steam Flow Kg/sec	
Maximum Export Heat Energy Capacity (if applicable) Gcal/h	
Pressure of Steam Extracted for Heat Energy Export bar	
Temperature of Steam Extracted for Heat Energy Export °C	
Annually Averaged Power Block Reliability for Last Five (5) Years	
Reliability Factor (ISO 3977-9) %	
Availability Factor (ISO 3977-9) %	
Operating Hours Hours	
Scheduled Maintenance Hours Hours	
Forced Outage Hours Hours	
Accumulated Commercial Operating Hours on Main Fuel as of Tender Closing Date Hours	
Accumulated Commercial Operating Hours on Standby Fuel as of Tender Closing date Hours	
Accumulated Power and Heat Energy in Commercial Operation as of Tender Closing Date for Both Fuels GWh	

Application Form (6)

Page of Pages

Gas Turbines

Name of Applicant

The Applicant shall provide adequate information to demonstrate clearly that it meets the requirements listed in Sub-clause 2.2-8) of **Instruction to Applicants**. A separate Form (6) shall be prepared for each similar gas turbine at most five (5) units.

Descriptions		Data
Name of Purchaser		
Location of Installation		
Country of Installation		
Model Number		
Name of Supplier		
Country of Manufacture		
Type of Main Fuel		
Type of Standby Fuel (if applicable)		
Capacity at ISO Conditions	MW	
Capacity at Site Conditions	MW	
Plant Configuration		
Number of Stages – HP Turbine		
Number of Stages – LP Turbine		
Turbine Inlet Temperature to 1 st Stage Stationary Blade of HP and LP Turbine	°C	HP Turbine LP Turbine
Exhaust Gas Temperature at ISO Conditions	°C	
Rotating Speed of Gas Turbine	RPM	
Type of Compressor		
Number of Stages		
Inlet Air Flow at ISO Conditions	kg/s	
Compressor Discharge Pressure at ISO Condition	bar	
Type and Number of Combustion Liners		

Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant

Descriptions	Data
Annually Averaged Reliability for Last Five (5) Years	
Reliability Factor (ISO 3977-9) %	
Availability Factor (ISO 3977-9) %	
Operating Hours Hours	
Scheduled Maintenance Hours Hours	
Forced Outage Hours Hours	
Date of Commercial Operation Start	
Accumulated Commercial Operating Hours on Main Fuel as of Tender Closing Date Hours	
Accumulated Commercial Operating Hours on Standby Fuel as of Tender Closing Date Hours	
Accumulated Power Energy in Commercial Operation as of Tender Closing Date for Both Fuels GWh	

Application Form (7)

Page of Pages

Heat Recovery Steam Generators

Name of Applicant

The Applicant shall provide adequate information to demonstrate clearly that it meets the requirements listed in Sub-clause 2.2-9) of **Instruction to Applicants**. A separate Form (7) shall be prepared for each similar heat recovery steam generator at most five (5) units.

Descriptions	Data
Name of Purchaser	
Location of Installation	
Country of Installation	
Model No. of Gas Turbine coupled with the HRSG	
Type of fuel(s) used in the Gas Turbine	
Type of Flow Direction of Exhaust Gas	
Type of Steam Cycle	
Type of Deaerator	
Steam Temperature at Outlet of HRSG	
High pressure °C	
Intermediate pressure °C	
Low pressure °C	
Steam Pressure at Outlet of HRSG	
High pressure bar	
Intermediate pressure bar	
Low pressure bar	
Steam Flow Rate at Outlet of HRSG	
High pressure t/h	
Intermediate pressure t/h	
Low pressure t/h	
HRSG Inlet Gas Temperature °C	
HRSG Exit Gas Temperature °C	
Annually Averaged Reliability for Last Five (5) Years	

Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant

Descriptions		Data
Reliability Factor (ISO 3977-9)	%	
Availability Factor (ISO 3977-9)	%	
Operating Hours	Hours	
Scheduled Maintenance Hours	Hours	
Forced Outage Hours	Hours	
Date of Commercial Operation Start		
Accumulated Commercial Operating Hours on the exhaust gas with main fuel as of Tender Closing Date	Hours	
Accumulated Commercial Operating Hours on the exhaust gas with standby fuel as of Tender Closing Date	Hours	

Application Form (8)

Page of Pages

Steam Turbines

Name of Applicant

The Applicant shall provide adequate information to demonstrate clearly that it meets the requirements listed in Sub-clause 2.2-9) of **Instruction to Applicants**. A separate Form (8) shall be prepared for each similar steam turbine for Combined Cycle Power Plant at most five (5) units.

Descriptions	Data
Name of Purchaser	
Location of Installation	
Country of Installation	
Type of Steam Cycle	
Type of Steam Turbine Configuration	
Type of Plant where Steam Turbine is Used	
Site Rated Power Output kW	
Steam Temperature at Inlet to Turbine	
High pressure °C	
Intermediate pressure °C	
Low pressure °C	
Steam Pressure at Inlet to Turbine	
High pressure bar	
Intermediate pressure bar	
Low pressure bar	
Steam Flow Rate	
High pressure t/h	
Intermediate pressure t/h	
Low pressure t/h	
Extracted Steam Conditions	
Pressure kPa	
Temperature °C	
Flow kg/h	
Exhaust Pressure kPa	

Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant

Descriptions	Data
Annually Averaged Reliability for Last Five (5) Years	
Reliability Factor (ISO 3977-9) %	
Availability Factor (ISO 3977-9) %	
Operating Hours Hours	
Scheduled Maintenance Hours Hours	
Forced Outage Hours Hours	
Date of Commercial Operation Start	
Accumulated Commercial Operating Hours as of Tender Closing Date Hours	

Application Form (9)

Page of Pages

Generators

Name of Applicant

The Applicant shall provide adequate information to demonstrate clearly that it meets the requirements listed in Sub-clauses 2.2-9) and 2.2-10) of **Instruction to Applicants**. A separate Form (9) shall be prepared for each similar generator^(*) for Combined Cycle Power Plant at most five (5) units.

Descriptions	Data
Name of Purchaser	
Location of Installation	
Country of Installation	
Model Number/Frequency/Number of Phase	
Name of Supplier	
Country of Manufacture	
Site Rated Power Output kW	
Rated Power Factor	
Rated Rotating Speed rpm	
Rated Voltage KV	
Rated Current A	
Rated Field Current A	
Excitation Voltage V	
Cooling Type and Cooling Medium	
Basic Cooling Medium Temperature (°C)	
Rated Cooling Medium Pressure MPa	
Year of Manufacture	
Type of Excitation	
Standard Applied	
Type of Insulation and Temperature Rise Limit (°C)	
Annually Averaged Reliability for Last Five (5) Years	
Reliability Factor (ISO 3977-9) %	
Availability Factor (ISO 3977-9) %	

Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant

Descriptions	Data
Operating Hours Hours	
Scheduled Maintenance Hours Hours	
Forced Outage Hours Hours	
Date of Commercial Operation Start	
Accumulated Commercial Operating Hours as of Tender Closing Date Hours	

(*): The generator manufacturer will be qualified as a manufacturer to be able to provide the similar generator to the Project with either of the following two (2) conditions;

1. The manufacturer has experience with construction of at least three (3) air cooled generators over 260 MVA as per IEC 34 or equivalent standards.
2. The manufacture has experience with construction of at least three (3) air cooled generators over 150 MVA and at least three (3) hydrogen cooled generators over 500MVA as per IEC or equivalent standards. The information of the hydrogen cooled generators shall be also provided with above Application Form (9).

**Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant**

Application Form (10)

Page of Pages

Financial Capability

Name of Applicant or partner of a joint venture or a consortium

Applicants, including each partner of a joint venture or a consortium, should provide financial information to demonstrate that they meet the requirements stated in the Instructions to Applicants. Each applicant or partner of a joint venture or a consortium must fill in this form. If necessary, use separate sheets to provide complete banker information. A copy of the audited balance sheets should be attached.

Banker	Name of banker		
	Address of banker		
	Telephone	Contact name and title	
	Fax	Telex	

Summarize actual assets and liabilities in U.S. dollar equivalent (at the rates of exchange current at the end of each year) for the last five (5) years. Based upon known commitments, summarize projected assets and liabilities in U.S. dollar equivalent for the next two (two) years.

Billion US \$

Financial information in US\$ equivalent	Actual; Last five (5) years					Projected: next two (2) years	
Year	-5	-4	-3	-2	-1	1	2
1. Total assets							
2. Current assets							
3. Total liabilities							
4. Current liabilities							
5. Profit before taxes							
6. Profit after taxes							

Application Form (11)

Page of Pages

Litigation History (including ODA related contracts)

Name of Applicant or partner of a joint venture or a consortium

Applicant, including each of the partners of a joint venture, should provide information on any history of litigation or arbitration resulting from contracts executed in the last two (2) years or currently under execution. A separate sheet should be used for each partner of a joint venture or a consortium.

Year	Award for or against Applicant	Name of client, cause of litigation, and matter in dispute	Disputed amount (current value, US\$ equivalent)

Attachment B

Pass/Fail Evaluation Form

Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant

Sub-clause to be referred to	Requirements	Pass	Fail	Remarks
2.2-3)	• Provision of accurate information on any litigation or arbitration.			
2.2-3)	• A consistent history of awards against the Bidder or any partner			
2.2-4)	• Total amount of EPC contracts of combined cycle power plants for the last five (5) years more than US\$ 500 million.			
2.2-4)	• Averaged annual turnover for the last five (5) years minimum US\$ 250 million.			
2.2-5)	• Provision of financial capabilities of Applicants in accordance with the attached Application Form (10).			
2.2-6)	• Provision of audited financial statements for the last five (5) years.			
2.2-4)	• The number of contracts for similar size of combined cycle power plants to the current project are more than one (1) in the last five (5) years			
2.2-7)	• Association agreement between the gas turbine manufacturer and the Applicant.			
2.2-7)	• Applicant and/or the GT manufacturer completed on a full turnkey basis more than (1) multi-shaft combined cycle power plant (block) with output larger than 350MW outside			

Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant

Sub-clause to be referred to	Requirements	Pass	Fail	Remarks
	its domicile country. • Application Form (5) to be used.			
2.2-7)	• The each combined cycle plant (block) has the experience with commercial operation more than 7,500 hours at Pre-qualification closing date. • Application Form (5) to be used.			
2.2-7)	• Written confirmation of successful operation of more than one (1) combined cycle power plant certified by the plant owners.			
2.2-8)	• The proposed GT is similar with more than one (1) natural gas fired gas turbines with a low NOx combustion system, which have the experience of successful commercial operation with at least 7,500 hours on the pre-qualification closing date. • Application Form (6) to be used.			
2.2-8)	• The Applicant provides written confirmation on the operating experience certified by the plant owners of the gas turbines.			
2.2-9)	• Identification of names of manufacturers of Gas Turbine Steam Turbine			

Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant

Sub-clause to be referred to	Requirements	Pass	Fail	Remarks
	Heat Recovery Steam Generator Electric Generator Main transformer			
2.2-9)	• The manufacturer has five (5) years experience in the manufacture of the heat recovery steam generator, steam turbine, electric generator and main transformer.			
2.2-9)	• The manufacturer has the experience in the manufacture more than (1) unit of the heat recovery steam generators (Application Form (7)), steam turbines (Application Form (8)), electric generators (Application Form (9)) and main transformers (Free form available) of similar size.			
2.2-10)	• Participation of qualified air-cooled generator manufacturers			
2.2-11)	• Bidder submitted the following documents; a. Experience and performance on multi-shaft type similar or larger size combined cycle power plants. b. Construction on a full turnkey basis experience with more than one (1) combined cycle power plant (block) over 250 MW in CIS and Turkey with similar climatic, geographical and economical conditions. c. Supporting letter(s) from Owners. d. Experience and performance of manufacturers to be			

**Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant**

Sub-clause to be referred to	Requirements	Pass	Fail	Remarks
	<p>engaged for supplying the major equipment.</p> <p>e. Association agreement letter with gas turbine manufacturer.</p> <p>f. Audited annual report for the last five (5) years.</p>			
2.2-13)	<p>• The Bidder has qualified personnel</p> <p>a. Project Manager</p> <p>b. Project Engineer</p> <p>c. Site Manager</p> <p>d. Documentation</p> <p>e. Lead Mechanical Engineer</p> <p>f. Lead Electrical Engineer</p> <p>g. Lead Controls Engineer</p> <p>h. Lead Civil/Structural Engineer</p>			
2.3-(1)	• A copy of business registration certificate submitted.			
2.3-(2)	• Certificates by public accountants to the Applicant's financial statements submitted.			
2.3-(3)	• Completion certificates submitted.			
2.4-1)-(1)-(i)	• The lead partner of the Joint Venture or Consortium meets the qualifying criteria.			
2.4-1)-(1)-(ii)	• Each of the other partners of the Joint Venture or Consortium meets individually the qualifying criteria.			

**Tashkent Thermal Power Plant Modernization Project
370MW Combined Cycle Power Plant**

Sub-clause to be referred to	Requirements	Pass	Fail	Remarks
2.4-1)-(1)-(iii)	• The Joint Venture or Consortium meets collectively the qualifying criteria.			
2.4-1)-(3)	• Signing of any Bid to legally bind all partners and submission of Joint Venture or Consortium Agreement			
2.5	• The Applicant does not have any conflict of interest.			
Application Forms	• All Application Forms requested by this Pre-qualification Documents are fully completed.			